Worcester State College

Undergraduate & Graduate Studies
1994-95 Catalog

Change of Catalog Information

This catalog was prepared in the spring of 1994, with information available at the time of preparation. Provisions of this catalog are subject to change by order of the Massachusetts Higher Education Coordinating Council or the Worcester State College Board of Trustees. It is the policy of the College to provide advance notice of changes whenever it is reasonable and practical to do so.

WORCESTER STATE COLLEGE

486 Chandler Street, Worcester, MA 01602-2597

CATALOG

UNDERGRADUATE AND GRADUATE STUDIES

Academic Year 1994-1995

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General Information

Prologue

From its founding in 1874 Worcester State College has been dedicated to educational programs that lead to self-enrichment and to careers in the professions, government, business and industry.

As a public, state-funded college governed by a local Board of Trustees under the direction of the Higher Education Coordinating Council, Worcester State College is empowered to award baccalaureate and master's degrees in education and in the arts and sciences. While continuing its tradition of serving the residents of the Commonwealth, the College has earned a reputation for quality teaching by dedicated faculty in classes of moderate size, and for programs responsive to its students' and society's changing needs.

Accreditation

Worcester State College is accredited by the New England Association of Schools and Colleges, Inc., a non-governmental, nationally recognized organization whose affiliated institutions include elementary schools through collegiate institutions offering post-graduate instruction.

Accreditation of an institution by the New England Association indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied through a peer group review process. An accredited school or college is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the New England Association is not partial but applies to the institution as a whole. As such, it is not a guarantee of the quality of every course or program offered, or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding the status of an institution's accreditation by the New England Association should be directed to the administrative staff of the school or college. Individuals may also contact the Association:

NEW ENGLAND ASSOCIATION OF SCHOOLS AND COLLEGES
THE SANBORN HOUSE, 15 HIGH STREET
WINCHESTER, MASSACHUSETTS 01890
(617) 729-6762

The following programs are accredited by their respective professional organizations: Nursing, The National League for Nursing; Speech-Language Pathology, the American Speech-Language-Hearing Association; Occupational Therapy, Accreditation Council for Occupational Therapy Education; and Nuclear Medicine Technology, the Committee on Allied Health Education and Accreditation, American Medical Association.

Policy on Nondiscrimination

The College is committed to a policy of nondiscrimination and affirmative action in its educational programs, activities, and employment practices. The College maintains and promotes a policy of nondiscrimination on the basis of race, creed, religion, color, sex, sexual orientation, age, disability, veteran status, marital status, and national origin. This policy incorporates by reference the requirements of Federal Executive Orders 11246 and 11375 as amended; the Civil Rights Act of 1964 as amended; Title IX of the Higher Education Act of 1972 as amended; Sections 503 and 504 of the Rehabilitation Act of 1973, as amended; Section 402, Vietnam Era Veterans Readjustment Assistance Act of 1974; the Civil Rights Restoration Act of 1988; and pertinent laws, regulations, and executive orders; directives of the Higher Education Coordinating Council, the Board of Trustees, the Commonwealth of Massachusetts, and other applicable state and federal statutes.

The Directorof Diversity, may be contacted regarding the College's policy of nondiscrimination and affirmative action (including compliance with Section 504 of the Rehabilitation Act of 1973, as amended).

Family Educational Rights and Privacy Act

Worcester State College complies fully with the provisions of the Family Educational Rights and Privacy Act of 1974. This federal law protects the privacy of education records, establishes the right of students to inspect and review their education records, and provides guidelines for the correction of inaccurate or misleading data.

Worcester State College accords all the rights under the law to students who are declared independent. No one outside the institution shall have access to nor will the institution disclose any information from students' education records, without the written consent of students except to personnel within the institution, to officials of other institutions in which students seek to enroll, to persons or organizations providing students' financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. All these exceptions are permitted under the Act.

At its discretion the institution may provide Directory Information in accordance with the provisions of the Act to include: student name, address, telephone number, date and place of birth, major field of study, dates of attendance, degree and awards received, the most recent previous educational agency or institution attended by the student, participation in officially recognized activities and sports, height and weight of members of athletic teams, and other similar information.

Currently enrolled students may withhold disclosure of Directory Information by notifying the Registrar in writing of the request prior to the end of the first week of classes in the Fall. Such requests will be honored for the duration of the academic year—September through August; therefore, authorization to withhold Directory Information must be filed annually with the Registrar. The College assumes that failure on the part of the student to specifically request the withholding of categories of Directory Information indicates individual approval of disclosure.

A request to withhold the above data in no way restricts internal use of the material by the College.

In compliance with the Family Educational Rights and Privacy Act of 1974, as amended, the College reserves the right to disclose information to parents of a student under 18 and/or the parents of a student who is dependent upon such parents for Federal Income Tax purposes.

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Mission

Located in New England's second largest city amid the fastest growing metropolitan region in Massachusetts, Worcester State College affirms the general mission for the state's institutions of public higher education: to provide Massachusetts residents with high quality, affordable educational opportunities. As one of seven four-year, state-supported comprehensive colleges, Worcester State College principally serves citizens from Central Massachusetts, regardless of their age, gender, and race, or their ethnic, cultural, and economic background.

In order to meet the diverse educational needs of its students in an academic environment that stresses effective teaching and scholarship, the College offers degrees at the baccalaureate and the master's levels as well as programs of continuing education. The curriculum of the College emphasizes a liberal arts core which provides students with a foundation for career and life choices; building upon this foundation is a dynamic variety of arts and sciences majors in addition to professional programs sensitive to student career requirements in a changing economic climate. Moreover, the College seeks to maintain a caring environment that encourages students to discover enduring personal, intellectual, and social values consistent with the highest ideals of a democratic society.

At the cornerstone of the mission of the College is public service. The College actively seeks shared experiences with local schools, businesses, cultural and social organizations, and other colleges and universities of Worcester, not only for the fullest personal and intellectual development of its students, faculty, and staff, but also for the future economic and human development of the region and the state.

While maintaining its basic character as a metropolitan institution serving a primarily commuting student population, the fundamental mission and purpose of the College will remain constant, providing access to affordable and quality education to the citizens of the Commonwealth. In support of this fundamental mission, the College's academic program offerings will evolve, as they have throughout its history, to meet its students' career needs. The College recognizes that students' needs change with shifts in social, political, and economic environments at the regional, state and national levels, and the College will be responsive to those needs. The College also recognizes that, in reaffirming its basic mission, it must also declare an academic mission for the future.

Worcester State College is committed to sustaining strong programs in liberal arts and sciences, to provide breadth in liberal education undergirding all professional studies, and also to provide students with in-depth knowledge in selected arts, humanities, social and natural sciences. Along with liberal arts and sciences, the College will maintain high quality professional programs in selected areas of education, business, and management. The College's historic identity and distinction are linked with these programs, which continue to be in high demand and meet career aspirations of students.

The College is located in a region with a diverse economy characterized by recent growth in medical and biotechnological industries, and health services. Therefore, building upon academic programs developed in the 1980s, the College will emphasize the development of new programs in biomedical sciences and health at the undergraduate and graduate levels. In fulfilling its academic mission, the College will utilize the economic and cultural resources of Worcester, and collaborate with public and private institutions of higher education in the region.

The Campus

The College is located on 58 acres of rolling, wooded land facing Chandler Street in the residential west side of Worcester. It is within an hour's drive of all major population centers in New England and combines urban convenience with a suburban setting. The College is convenient to the Worcester Airport, a regional facility, and to Interstate Highways 90 (Massachusetts Turnpike), 190, 290 and 495. The campus is served by buses of the Worcester Regional Transit Authority and by the shuttle bus service of the Worcester Consortium for Higher Education. The physical facilities of the Campus include the following:

Administration Building
Constructed in 1932 to inaugurate the College's new location, the administration building houses the central administration, including undergraduate and graduate academic offices, the Admissions Office, faculty offices, minority affairs, personnel and affirmative action, and finance offices, classrooms, laboratories, and an auditorium equipped for theatrical productions.

Sullivan Academic Center
Named for Eugene A. Sullivan, College president from 1947 to 1970, the Sullivan Academic Center is the principal instructional center on campus. It contains faculty and academic department offices, a large lecture hall (Eager Amphitheater), science laboratories, classrooms, the Communication Disorders Clinic, and a large attached auditorium. The Sullivan Auditorium provides the setting for a number of formal ceremonies including the annual Academic Honors Convocation. Also located in the Sullivan Academic Center are the Learning Assistance Center, administrative offices of the Registrar and Academic Services for undergraduate and evening programs, and Financial Aid.

Learning Resources Center
The Learning Resources Center (LRC) houses the library, a comfortable place for study and research with over 134,000 volumes and approximately 1000 current periodicals. The Library is a member of the Worcester Area Cooperating Libraries (WACL), a joint effort of 15 academic, public, and special libraries to facilitate the sharing of resources and provide advanced techniques in library and information science. A book delivery shuttle service operates daily during the academic year and weekly during the summer to facilitate interlibrary loans to students, faculty and staff. WACL extends cross-borrowing privileges to all full-time and permanent part-time faculty and high-level administrators. Individually issued WACL cards permit direct loans from member libraries.

The Learning Resources Center also encompasses a complex of modern telecommunications and electronic learning facilities. Among these is the Academic Computer Center, supported by a mainframe via the Massachusetts Education Computer Network and open access microcomputer laboratories. The Computer Center comprises a VAX 3900 and a VAX 6410, using the VMS operating system, with INTERNET connection to the outside world, a Novell-networked Writing Classroom, a Novell-networked Math Lab, and several Dell computers with the 486 microprocessor and Macintosh computers.

Also in the LRC are television studios and a production facility, photographic laboratories, an audiovisual center equipped for production of slides and tapes, and the student-operated radio station WSCW. The offices of the Dean of Administration and Publications and Printing Services, seminar rooms, classrooms, lecture halls, and faculty offices are located in this building.

Gymnasium
The Gymnasium contains indoor athletic and recreational facilities, including the Oscar Larsson Fitness Center. In addition, it houses education, urban studies, art, occupational therapy and physical education faculty, the Health Services Office, and Athletics and Recreation administrative offices.

Residence Halls
Residence Halls at Worcester State College provide housing to approximately 700 full-time undergraduate students. Chandler Village is an unusual and distinctive residential townhouse grouping that includes apartments in interconnected buildings. The apartments accommodate four, eight, 12, or 14 persons and include furnished common living and kitchen areas. Dowden Hall, more traditional in style, is a five-story dormitory building which includes rooms for single and double occupancy, common rooms and lounges, and a state-of-the-art security system.

Student Center
A modern facility, the Student Center is available as a resource for the entire College community and is conveniently situated at the geographical center of the campus. The facility contains a cafeteria and dining area, snack bar, pub, and lounges; rooms for games, music, and television viewing; offices for Student Affairs personnel and student organizations; a student-run print center; an auditorium; a dancing and exhibit area; a bookstore, and meeting rooms.

Outdoor Facilities
The College has the advantage of naturally attractive surroundings. Among its outdoor facilities are a football field, baseball and softball diamonds, field hockey and all-purpose field, tennis courts and a track.

Community Relations

The College strives to extend its resources to the community and to involve the community in its educational endeavors through the efforts of the Office for Institutional Advancement and Alumni Affairs and the Office of Community Services/Public Relations. The offices, in conjunction with the Office of the President, are actively involved in community outreach and community relations to enhance the goals and mission of the College. A variety of events are planned each year to foster College and community interaction. The College participates in events sponsored by the state, the City of Worcester, and the local Chamber of Commerce; hosts conferences, community breakfasts, lunches, and seminars; sponsors lectures, symposia and workshops; and supports a variety of initiatives in the arts and multi-cultural events.

The Worcester State College Alumni Association, Inc. is responsible for alumni fund-raising, the McKelligett Lecture Series, planning and support for the annual Homecoming, class reunions, and The Outstanding Alumnus/a Award Dinner. The Association also publishes the WORCESTER STATEment and Alumni Alert. It is the policy of Worcester State College to strictly control the use of the name of the institution for fund-raising and other activities. The College, through the Director of the Office for Institutional Advancement and Alumni Affairs, or other appropriate official, reserves the right to revoke any authorization to use the name of the College for fund-raising purposes.

The Office for Institutional Advancement and Alumni Affairs seeks to foster and maintain lifelong fellowship among alumni and friends of the College. It encourages them to participate in campus events and to provide current addresses, employment information, personal achievements and successes, and other items of interest. Funds from friends and alumni provide scholarships, academic awards, laboratory and classroom equipment, financial aid seminars for students and their families, lectures, and other support essential to sustaining quality education.

Special Programs and Activities

The College's calendar includes numerous programs and events to which the public is welcomed. Members of the community have participated in workshops and conferences on topics such as energy, elder affairs, and hearing disabilities. Among its special programs are:

The President's Lecture Series
Since 1978 an outstanding member of the Worcester State College academic community has been selected to deliver the President's Lecture. The annual event has proven to be an incentive for enriching and promoting faculty research and scholarship as well as an intellectual challenge to the entire community.

Science and Human Condition Series
Established in 1972, the Worcester State College Science and Human Condition Series sponsors films, lectures and panel discussions on major and topical issues of an interdisciplinary nature. Worcester State College faculty and invited speakers participate in programs designed to increase understanding through dialogue among specialists in the sciences and humanities.

Academic Honors Convocation
Conducted annually, the Academic Honors Convocation gives special recognition to Worcester State College students who excel academically. Students so honored include those achieving the highest grade point average in individual disciplines, scholarship recipients, special academic award recipients, honor's list and honor society inductees.

Services for Students

Orientation

The orientation program introduces incoming undergraduates to the College and to campus life by identifying services, activities, and opportunities that exist for every student. The Orientation program is designed to provide information on a variety of relevant topics, to attend to students' (and parents') questions and to provide a warm welcome to the College.

Career Development Center

Planning ahead should be part of the educational and daily routine of each student. Of particular concern should be an awareness of the world of work, the potential career options that merit consideration, and the means necessary to reach that goal.

Assistance is available to help one define professional interests and then link these to the appropriate educational program. Seminars are offered each semester on subjects such as the preparation of a resume and cover letter, how to handle the interview for a position, and how to manage an effective search for appropriate employment. The Resource Room contains material on potential internships, listings of full time and part time positions, graduate schools, as well as a wealth of information in print or on computer for a variety of career options. Our testing center handles the Strong-Campbell Interest Inventory, Holland Self-Directed Search, CLEP, GRE, GMAT, LSAT and Miller Analogy Test.

Services are provided on a year-round basis for undergraduates, graduate students and WSC alumni. Appointments are available to suit your schedule.

The Counseling Center

The Counseling Center assists students in coping with personal issues which interfere with their personal development and sense of well-being. Individual counseling is available to anyone seeking assistance. Support groups are also available during the academic year. Workshops on a variety of topics related to personal growth are offered each semester.

The Counseling Center provides services to undergraduate and graduate students and to WSC alumni.

Health Services Office

The Health Services Office is located in the Gymnasium Building off the main foyer. The office is staffed full-time by a registered nurse and part-time by a physician. During the academic year, Health Services hours are 8:30 a.m. to 4:30 p.m., Monday through Friday; the College physician is in attendance on Monday, Wednesday, and Friday mornings. During the summer months when the Health Services Office is closed, emergencies are referred to Campus Police.

Services include acute and routine medical care, allergy injections, specialty referral and hypertension screening. Treatment is completely confidential. Students' health history forms remain on file in this office; health insurance brochures and claims forms are available.

Health Forms and Immunization

Each full-time undergraduate and graduate student born after 1956, and **all** full- **and** part-time students in health science programs involving patient contact (Nursing and Occupational Therapy), regardless of their birth date, must present evidence of immunization in order to register for classes. Massachusetts Law specifies the following immunizations: 1) at least one dose of mumps and rubella vaccine(s) given at or after 12 months of age; 2) two doses of live measles vaccine given at least one month apart beginning at or after 12 months of age; and 3) a booster dose of tetanus/diphtheria within the last ten years. A copy of an immunization record from a school in the Commonwealth indicating receipt of the required immunizations may be presented; or in the case of measles, mumps or rubella, laboratory evidence of immunity. The Law provides for medical and/or religious exemptions. Provision is also made that students may be registered on the condition that the required immunizations be obtained within ten days of registration.

Students must submit the Worcester State College Report of Medical History form, completed by a physician, in order to register for classes.

Health Insurance

The Commonwealth of Massachusetts requires that students must be covered by insurance under their own policy or purchase the Worcester State College health insurance plan. Health insurance is required for undergraduate students if they register for nine (9) or more semester hours of credit. Coverage for graduate students is required if they register for seven (7) or more semester hours of credit.

At the time of Fall and Spring registration, all students will be enrolled in and charged for the Worcester State College Student Health Insurance Program. Students who do not wish to participate in the College's plan must return a completed waiver request form which is enclosed with their bill. Both the completed waiver form and prof of insurance coverage should be returned with paymentof their bill to the Bursar's Office. Students who enroll only in summer session classes are not required to participate.

Athletics and Recreation

The objectives of the Athletic and Recreation Department include promoting qualities of leadership and sportsmanship, enhancing emotional and social development, and fostering the development of physical skills of undergraduate students. To meet those objectives, the Athletic and Recreation. Department offers a wide range of intercollegiate and intramural activities.

As a Division III member of the National Collegiate Athletic Association (NCAA), the Massachusetts State College Athletic Conference (MASCAC), the Eastern College Athletic Conference (ECAC), and the Massachusetts Association for Intercollegiate Activities for Women (MAIAW), the College offers baseball, basketball, cross-country, football, golf, ice hockey, soccer, tennis, and track and field for men; and for women, basketball, cross-country, field hockey, soccer, softball, tennis, track and field, and volleyball. Crew, equestrian, and men's volleyball are offered at the club level.

For those students not interested in competing on an intercollegiate level, the College offers an intramural sports program. The program includes touch football, coed football, basketball, tennis, street hockey, softball, volleyball, and golf. Any student who wishes to participate in intramural sports, regardless of ability or past experience, is urged to do so. For the recreational athlete, the College also offers open gym time as well as a modern, well-equipped fitness center. Students may also find part-time employment through the intramural director as supervisors and officials.

Student Activities and Organizations

A variety of cultural, social and service activities complement classroom instruction at the College including films, topical lectures, and performing artists. Students are encouraged to participate in one or more of the student organizations: the Student Events Committee, WSCW Radio, the Student Television Organization (TV-11), The Student Voice (weekly newspaper), Yearbook, Newman Association, Student Government Association, Third World Alliance, Ski Club, and special interest clubs, more than 25 in all.

There is an active Student Government Association with a President and a Student Senate comprised of elected representatives from each class. Annual campus traditions include Homecoming, Winter Carnival, the Spring Fling, and Senior Week.

Residence Life and Housing Services

The objective of the Office of Residence Life is to create and maintain an environment that supports academic achievement and stimulates personal, physical, intellectual, ethical, and cultural growth of students. Students may choose to live in one of two residential facilities on campus.

Chandler Village accommodates approximately 475 students. It is a unique living area with 63 apartments in 26 interconnected townhouses. The different apartments accommodate four to 14 people, and include common living and kitchen areas. Bedrooms in Chandler Village vary in size from single to four-person occupancy. All apartments are furnished with kitchen appliances, as well as bedroom and common room furniture.

Dowden Hall, accommodating approximately 213 students, is a traditional residence hall overlooking the lower campus. Dowden Hall was opened in 1991 and is a substance free facility. It includes single and double rooms with study and recreational lounges on each floor. Dowden Hall is accessible to persons with disabilities and entry to the residence facility is electronically controlled through the use of magnetic pass keys.

See pages 49–50, Room and Board, for additional information.

International Student Services

The Director of Counseling and Career Services serves as advisor to all international students, and assists with immigration matters and personal counseling. The College is authorized under federal law to enroll nonimmigrant alien students. Any student who is not a United States citizen or permanent resident must contact the Director of Counseling and Career Services upon acceptance to the College.

Learning Assistance Center

The Learning Assistance Center, located in S219B, helps students increase their academic effectiveness. Assistance includes one-to-one or group tutorial, study skills, and/or time management for up to ten (l0) hours per semester. A preliminary assessment conducted by Learning Assistance Center staff may be used to determine the most appropriate course of action. Please call 793-8000, ext. 8530 or drop in.

Veterans Information

The Registrar's Office provides general information of interest to veterans and dependents of veterans enrolled at the College. Spouses and dependents of 100% disabled or deceased veterans may be eligible for educational benefits and are encouraged to contact the Office.

Math Lab

The Math Lab houses Developmental Mathematics (MA-099) and College Algebra (MA-ll0). Students learn by text, computer tutorial, video and/or audio tutorial and are tested on computer. All course activities are directed by faculty members.

The Lab is open to all on a walk-in basis throughout the day and evening and is staffed with peer and professional tutors to assist in the aforementioned courses as well as other mathematics courses. Hours (including weekend hours) are posted. Any student may request assessment and advisement with respect to mathematics level readiness and may use the Lab for refreshing their skills before taking a course that requires knowledge in some area of mathematics.

The lab is also growing in use for higher level mathematics course as the network of 22 new computers running Novell 3.11 proves to be a powerful tool.

All services are free of charge. For more information call (508) 793-8000, Extension 8607.

Campus Ministry

Campus Ministry provides religious services, pastoral counseling and a variety of programs aimed at the spiritual and psychological development of the College Community. Under the direction of a full-time Campus Minister, its staff consists of a Catholic Priest, several Protestant Campus Ministers, and the United Campus Ministry, which includes 20 available clergy representing 13 denominations. The ministry is housed in the Campus Ministry House, behind Dowden Hall. The House is open daily and provides a quiet place to study, watch television, listen to the stereo, cook a meal, or just relax and meet other people. Campus Ministry provides an interfaith approach to ministry with programs and services open to all students and the College Community at large.

Campus Police Department

The Campus Police Department is responsible for the safety and security of the Worcester State College Community: students, faculty, staff, and guests. Security is provided 24 hours a day throughout the calendar year by a full-time staff of 10 sworn officers, a student escort service, student auxiliary services and part-time dispatchers. Campus police officers enforce the rules and regulations of the College and the General Laws of the Commonwealth of Massachusetts. The Campus Police Office is located in the lobby of Dowden Hall.

College Bookstore

The College Bookstore is located on the first floor of the Student Center. This full-service bookstore offers new and used textbooks, reference books, fiction and nonfiction in hardcover and paperback as well as an array of gift items and school supplies. Worcester State College memorabilia and a selection of imprinted apparel are also available. Textbooks for all classes may be purchased at the bookstore. Textbook returns are accepted within 10 days of the start of classes and must be accompanied by the sales receipt. The refund policy is posted throughout the bookstore.

Dining Services

The Dining Services at Worcester State College offer two separate areas of operation. The Snack Bar and Kiosk, located on the lower level of the Student Center, offers fast food, hot and cold beverages, subs, pizza, novelty ice cream and snack foods. Hours of operation are l0:30 a.m. until 4:30 p.m.

The Cafeteria on the top level of the Student Center is open Monday through Friday between 7:45 a.m. and 9:45 a.m. for breakfast; between 11:30 a.m. and 1:30 p.m. for lunch, and 4:30 p.m. to 6:00 p.m. for dinner; the Deli Bar and Grill is open from 3:00 p.m. to 8:00 p.m. On Saturday and Sunday, the Cafeteria is open from 10:30 a.m. to 5:30 p.m. Students and visitors may purchase items with cash or a food service plan card. **Resident freshmen and transfer students are required to purchase the food service plan for one academic year.**

See pages 49–50, Room and Board, for additional information.

Disability Services Office (DSO)

The College is committed to providing equal opportunity to its academically qualified students who are disabled. In accordance with Section 504 of the Rehabilitation Act of l973 and the Americans with Disabilities Act of l990 (ADA), services have been established to ensure that the facilities and programs at Worcester State College are accessible to all students.

By means of reasonable accommodations, the Disability Services Office (DSO) provides assistance to students who are physically disabled, learning disabled, and emotionally disabled. Services/programs are developed on an individual basis and students may elect to utilize any, or all, of these services. All students with disabilities who receive services from the DSO are required to provide appropriate documentation of their disabilities.

A campus visit prior to acceptance or matriculation is recommended so that the applicant may discuss concerns and services with DSO personnel.

Undergraduate Studies

Degree Programs

Worcester State College is authorized to award the Bachelor of Arts (BA), Bachelor of Science (BS) and the Bachelor of Science in Education (BE) degrees. Degree and other academic programs are presented below.

Program	Major	Minor	Sponsoring Department
Art		X	Visual & Performing Arts
Biology	BS	X	Biology
Biotechnology	BS		Biology
Business Administration	BS	X	Business Administration & Economics
Chemistry	BS	X	Chemistry
Communication Disorders	BS	X	Communication Disorders
Communications	BA	X	Communications
Computer Science	BS	X	Mathematics & Computer Science
Early Childhood Education	BE		Education
Economics	BS	X	Business Administration & Economics
Elementary Education	BE		Education
English	BA	X	Languages & Literature
French	BA	X	Languages & Literature
Geography	BS	X	Physical & Earth Sciences
Health Studies	BS	X	Health Science
History	BA	X	History & Political Science
Mathematics	BS	X	Mathematics & Computer Science
Middle East Studies		X	History & Political Science
Music		X	Visual & Performing Arts
Natural Science	BS	X	Physical & Earth Sciences
Nursing	BS		Nursing
Occupational Therapy	BS		Occupational Therapy
Philosophy		X	Philosophy
Physical Therapy*	BS		Occupational Therapy
Physics	BS	X	Physical & Earth Sciences
Political Science		X	History & Political Science
Psychology	BS	X	Social & Behavioral Sciences
Secondary Education		X	Education
Sociology	BS	X	Social & Behavioral Sciences
Spanish	BA	X	Languages & Literature
Urban Studies	BS	X	Urban Studies

The following interdisciplinary concentrations are also available:

Concentration	Sponsoring Department
Gerontology	Urban Studies and Consortium Institutions
Labor Studies/Labor Relations	Business Administration & Economics and History & Political Science
Nuclear Medicine Technology	Biology, Chemistry, Physical & Earth Sciences
Women's Studies	Health Science, History & Political Science, Languages & Literature, and Social & Behavioral Sciences

Engineering Science Transfer Program:
In cooperation with the University of Massachusetts - Dartmouth, the University of Massachusetts - Lowell, and Worcester Polytechnic Institute, the College offers a program that prepares students for transfer to Chemical, Civil, Electrical and Mechanical Engineering Programs. As Natural Science majors, students complete the freshman and sophomore years of prescribed study at Worcester State College in preparation for transfer.

*Physical Therapy will be offered as a major to students entering Fall 1995 and thereafter.

Admission

Requirements for admission to undergraduate study at Worcester State College emphasize the high school academic background and have two components: Unit Requirements in specific courses and the Eligibility Index.

Unit Requirements

The following high school studies are minimum requirements:

- Four years of English. These should be college preparatory courses in composition and literature which include the development of writing and comprehension skills.
- Three years of mathematics. These should be college preparatory courses in subjects such as algebra, geometry, trigonometry, elementary functions, and mathematical analysis, or calculus.
- Two years of natural science, both of which should include laboratory.
- Two years of social science, which should include one year of United States history and government.
- Two years of study in a single foreign language.
- Three elective units from the following disciplines: English, mathematics, natural science, social science, foreign language, computer science, visual/ performing arts, and the humanities.

Applicants who graduated from high school three or more years ago or who obtained the high school equivalency certificate (GED) or an evening high school diploma are exempt from the academic unit requirements.

Vocational-Technical graduates must complete the unit requirements in all areas except foreign language and electives. The technical vocabulary work associated with the three to four years of Chapter 74 vocational study can substitute for the two year foreign language requirement. Three vocational-technical units may fulfill the three elective units required by the admission standards policy.

Transfer applicants who hold the Associate Degree and other transfer applicants who meet the requirements of the campus transfer admissions policy are exempt from the academic unit requirements.

Certified learning disabled students should submit an Individualized Educational Plan (IEP) to be considered for exemption from any of the admission requirements.

Eligibility Index

The Eligibility Index combines scores on the Scholastic Aptitude Test (SAT) and high school class rank. Both are considered in determining minimum eligibility. Applicants should consult members of the admissions staff for specific details.

Combined SAT Score	Weighted Rank in Graduating Class
500	Upper 25%
550	30%
600	35%
650	40%
700	45%
750	50%
800	60%
850	65%
900	70%
1000	80%
1050	85%
1100	90%

The table shows that applicants in the lower 40% of their class must have a combined SAT score (verbal plus math) of 800 or above to meet the minimum eligibility standards for admission to a state college.

Students who do not meet the admissions eligibility index may be exempt under the following circumstances:

- graduated from high school more than three years ago,
- obtained a GED (high school equivalency certificate),
- graduated from an evening high school,
- designated special needs student as defined by Chapter 766 or Chapter 344, and as documented by the Individualized Educational Plan,
- transferred after receiving an associate degree from a Massachusetts community college or transferred from another institution and met requirements of the campus transfer admissions policy,
- identified as educationally, ethnically, or financially disadvantaged.

Chapter 344, which exempts the developmentally disabled from submitting SAT scores for consideration for college admissions, was amended by advocates for the blind. As a result, the blind and visually-impaired without other disabilities are required to take the standardized college entrance aptitude test (SAT) to gain admission to public baccalaureate institutions.

The Application Process: Directions for Freshman Applicants

Massachusetts high school students can obtain application forms from their school counselors. Forms may also be obtained from the Admissions Office, Worcester State College, 486 Chandler Street, Worcester, MA 01602-2597, (508) 793-8040.

Each applicant must supply the following materials:

- A final high school transcript or high school equivalency certificate (GED) test score report.
- All transcript materials requested by the applicant become the property of Worcester State College and cannot be released to the applicant nor to other institutions or agencies.

High school students should request an official high school transcript that includes at least the first marking period of the senior year. Also, a final high school transcript must be requested at the time of graduation that indicates successful completion of the requirements to graduate from high school. The Admissions Office must receive this

official, final high school transcript before registration of courses and the award of financial aid is finally approved.

GED recipients must submit the test score report for evaluation and not the certificate of completion. The GED test report cannot predate an applicant's anticipated graduation date from high school.

- Record of completion of the College Board Scholastic Aptitude Test and Student Descriptive Questionnaire sent directly to the College by Educational Testing Service.
- A completed Worcester State College application form.
- Payment of an application fee: $10.00 for Massachusetts residents, $40.00 for all others.

In addition, applicants seeking Advanced Placement credit must arrange to have scores sent to the Admissions Office.

The Application Process: Directions for Transfer Students

Transcripts from colleges previously attended are the primary factor in determining acceptance to the College. To be considered a transfer applicant, a student must have successfully completed at least 12 transferable hours at an accredited college or colleges. The following materials must be supplied:

- A final high school transcript, indicating proof of graduation from an accredited high school or a high school equivalency certificate indicating the test scores received. These must be received by the Admissions Office before clearance for registration or the award of financial aid is approved.
- An official transcript of all courses completed at each post-secondary institution attended.
- All transcript materials requested by the applicant become the property of Worcester State College and cannot be released to the applicant nor to other institutions or agencies.
- A completed Worcester State College application form.
- Payment of an application fee: $10.00 for Commonwealth residents, $40.00 for all others.

To qualify for a degree from Worcester State College, transfer students must complete at least 30 of the last 40 semester hours of credit at Worcester State College. Credits earned elsewhere will be evaluated with respect to curricular requirements of Worcester State College and an indication of acceptable transfer courses will be included with the acceptance letter.

Commonwealth Transfer Compact

The Commonwealth Transfer Compact applies to students transferring from Massachusetts community colleges to public colleges and universities offering the baccalaureate degree. Students shall be eligible for transfer compact status if they have met the following requirements: a) completed an associate degree with a minimum of 60 credit hours exclusive of developmental coursework; b) achieved a cumulative grade point average of not less than 2.0 (in a 4.0 system) at the community college awarding the degree and c) completed a minimum 35 credits in general education, exclusive of developmental coursework. The general education core consists of English composition/writing (6 credits), behavioral and social sciences (9 credits), humanities and fine arts (9 credits), natural or physical sciences (8 credits) and mathematics (3 credits).

For students eligible under the compact, the 35 credits in general education will be applied toward the fulfillment of the receiving institution's general education requirements. A minimum of 25 additional credits will be accepted as transfer credits by the receiving institution. These credits may be transferred as free electives, toward the student's major, or any combination, as the receiving institution deems appropriate.

To complete the baccalaureate degree, students who transfer under this compact may be required to take no more than 68 additional credits unless they change their program upon entering the receiving institution, or the combination of additional general education requirements and the requirements of their major at the receiving institution total more than 68 credits. Under these circumstances, transfer students will be subject to the same requirements as native students. A transfer student may not be held to any degree requirements at the receiving institution that were established less than three years prior to transfer admission.

Articulation Agreements
In addition, Worcester State College has established joint admissions agreements and curriculum specific articulation agreements with Quinsigamond and Mt. Wachusett Community Colleges, and Community College of Rhode Island. Additional information is available from the Office of the Asssociate Vice President, Academic Affairs at Worcester State College and the Academic Deans at Mt. Wachusett and Quinsigamond Community Colleges, and the Community College of Rhode Island.

Pre-entrance immunization requirements: New freshman and transfer students must submit required health forms before registering for classes. For additional information refer to Health Services on page 14.

All applicants should take note that admission to the College does not guarantee acceptance to a particular major. Prerequisites, if any, for admission to majors are described under each academic program. See pages 62–212.

Special Students

Students classified as Senior Citizens, College Academic Program Sharing (CAPS) and Consortium may enroll as Special Students. Others may enroll up to a maximum of ll credit hours on a slot available basis at a time designated by the Registrar. Others who wish to enroll for more than ll credit hours in state-supported classes must be admitted to the College through the Office of Admissions before taking courses.

Admission to Non-Degree Programs

Applicants who have already earned a bachelor's degree and wish to complete a second major or teacher certification program should specifically request an undergraduate non-degree application form.

Second Baccalaureate Degree

Applicants who have already earned a bachelor's degree may apply for a second baccalaureate degree. Requirements for this degree are found on page 25.

Evening Undergraduate Course Offerings

Evening undergraduate course offerings are designed primarily to meet the needs and interests of adult learners and other non-traditional students who pursue study primarily on a part-time basis. The evening schedule of courses offered by the College is especially convenient for students whose job and family commitments prevent enrollment in day programs. Instruction in evening courses is provided by Worcester State College faculty and a complement of qualified adjunct faculty.

All degree seeking students must follow the procedures for admission to the College outlined above. Students are advised that there is no guarantee that all courses necessary to completion of degree requirements will be available exclusively in evenings/summers.

Academic Policies and Procedures

General Requirements for the Baccalaureate Degree

Candidates for a baccalaureate degree must complete 120 semester-hour credits with a 2.0 Cumulative Grade Point Average (GPA) and a minimum 2.0 GPA in the major. To receive a baccalaureate degree from Worcester State College, a student must:

- complete 30 of the last 40 credits at Worcester State College;
- earn a majority of credits in the major at Worcester State College;
- earn a majority of credits in the minor (if elected) at the College.

Students completing their degrees within six years must meet the degree requirements of the catalog under which they enter the college. After six years, students are subject to the degree requirements of the catalog in effect for their year of graduation.

Second Baccalaureate Degree: A student who holds a bachelor's degree from Worcester State College or another four-year institution of higher education accredited by regional accrediting agencies may be awarded a second bachelor's degree by completing a minimum of 30 additional semester hours of prescribed work at Worcester State College. Twelve semester hours of the 30 must be in upper- level work in the student's major, and the student must meet all requirements for that major. In addition, in order to be granted a second degree, the student must meet all current catalog requirements for a baccalaureate degree at Worcester State College, as follows:

- All courses from the former institution which the Office of Admissions deems usable towards fulfillment of the foundation and general education requirements currently existing at Worcester State College will be transferred to the student's second baccalaureate program.
- All courses transferred into the student's major for the second degree are subject to the approval of the Department Chair.
- As many credits from the former institution as are deemed appropriate by the Office of Admissions will be transferred to the student's second degree program as elective credits.

Post-baccalaureate students who do not seek a second baccalaureate degree at Worcester State College will receive a letter from the Registrar certifying completion of the second major upon completion of all prerequisites to the major and all requirements of the major.

General Education Requirements

The College offers general education courses in humanities, behavioral and social sciences, natural sciences, mathematics and computer science, fine arts and health. Together these provide an integrated study which stimulates active learning. Students will be given the opportunity to interpret facts, solve problems, evaluate issues and think creatively and critically.

The general education curriculum at Worcester State College is directed toward helping students to achieve the following:

- To speak and articulate, write clearly and precisely, and listen and read with comprehension;
- To demonstrate basic competencies of mathematical and computer sciences needed to function effectively in our rapidly changing world;
- To acquire an historical perspective;

- To read and interpret a variety of works in literature, music, art and philosophy drawn from the student's own and other cultures;
- To understand the basic principles of modern science and the implications of science in today's society;
- To gain a better appreciation of the student's own attitudes, beliefs and values, as well as those of others.

The General Education Program prepares students to be inquisitive about the world and to be informed about how to make sense of it. The courses lead students to make intellectual, aesthetic and moral judgments in whatever life and career paths they folllow.

Foundation Requirements (Competencies) Credits

English Composition:

EN 101*, EN 102 English Composition I* & II — 6 Credits
•unless waived by the Department of Languages and Literature.

Mathematics: All students will complete one three-credit course, ordinarily during the freshman year. The Department of Mathematics and Computer Science may recommend the mathematics laboratory, a developmental self-paced course for students whose test scores indicate the need. — 3 Credits

NOTE: EN 099 and/or MA099: Students whose test scores indicate the need will be required to take EN 099 and/or MA 099 during the freshman year. These developmental courses carry institutional credit and may not be used to satisfy distribution, major or minor requirements. Institutional credits do not count toward satisfaction of the 120 credit requirement for graduation. They do, however, count toward establishing a student's full-time status during the semester for financial aid and other purposes.

Constitutions: All students will complete, prior to graduation, one course* in which the constitutions of both the United States and Massachusetts are studied (Massachusetts General Laws, Chapter 73, Section 2A). Courses which satisfy this requirement include: — 3 Credits

HI 111 and HI 112, US History I and II; HI/PO 218 and 219, US Constitutional History I and II; PO 102, Constitutions: US and Massachusetts; and PO 210, American Government.

* Unless waived by the Department of History & Political Science

Foundation courses may not be taken on a pass/fail basis.

Distribution Requirements

The College requires a specified number of credits in the humanities, the behavioral and social sciences, the natural sciences, mathematics, and fine arts, and health studies. Students may select from a broad spectrum of courses in each of these areas. The distribution requirements may be met in any year of the undergraduate program, but students are advised to complete them insofar as possible during the first two years of study. The following restrictions apply:

a) No course within a student's major discipline may be used to satisfy any distribution requirement.

b) A student may apply no more than 6 credits in a given discipline within a group toward the satisfaction of a distribution requirement; e.g., Humanities: 6 credits in English and 6 credits in History.

Group I: Humanities **12 credits**
Students will complete a minimum of **four courses** with 12 credits selected from the disciplines of:

English,
Foreign Languages
History
Philosophy
Communications (excluding courses that apply to Group IV).

Group II: Behavioral and Social Sciences **12 Credits**
Students will complete a minimum of **four courses** with 12 credits selected from the disciplines of:

Cultural Geography (Courses with "GE" prefixes)
Economics
Education
Political Science
Psychology
Sociology
Urban Studies

Group III: Natural Sciences and Mathematics **13 Credits (minimum)**
Students will complete a minimum of **four courses** of a minimum of 13 credits, at least one of which must be a laboratory course awarding three or more credits, selected from:

Biology
Chemistry
Geology/Physical Geography (only courses with "GS" prefixes)
Mathematics
Natural Science
Physics

Group IV: Fine Arts **9 Credits**
Students will complete a minimum of **three courses** with 9 credits selected from:

Art
Communications*
Music
Theatre
Visual and Performing Arts

* The following Communications courses are considered fine arts offerings and can be used to satisfy **Group IV** distribution requirements: CM 150, CM 231, CM 241, CM 366, CM 367, CM 384, CM 410.

Group V: Health Studies **3 Credits**
Students will complete either one 3-credit health or physical education course or three 1-credit activity courses. This basic requirement may be waived upon validation of completion of military basic training; ROTC students receive a 1-credit exemption for each year of ROTC completed.

Electives

Having met the general education requirements and those of the major (and minor, where applicable), a student may elect other courses without restriction to complete the 120 semester hours of credit necessary for graduation. Since the purpose of elective courses is to encourage exploration in diverse fields of knowledge, students are urged to take advantage of the opportunity to broaden and deepen their intellectual development.

Intent to Graduate

The degree and diploma will be granted within 60 days of the final day of examinations for the semester in which degree requirements have been met providing that students have adhered to the following deadlines for filing an Intent to Graduate form:

December completion—Last Friday of October
May completion—Last Friday of December
August completion—Last Friday of May

Declaration of Major/Minor

Major: Upon or after admission to the College, and in any case prior to the beginning of the junior year, degree seeking students declare an intent to major in a specific discipline. In general, a major is completed by earning no fewer than 30 and no more than 48 credits with a minimum GPA of 2.0. Courses are selected under the direction, and with the approval, of the student's faculty advisor in the major department.

A department may establish standards for admission of enrolled students into major and minor programs. These standards are not based solely on any GPA. They may be based on grades earned in prerequisite courses, demonstration of special knowledge and skills through tests, portfolios, interviews, and other relevant criteria. Departments must have standards approved by the All College Committee. A minimum GPA at variance with College policy may not be used as a standard for retention as a major or minor student within a department. Transfer credit within the major must be approved by the major department.

Minor: Although not required for graduation, a minor may be completed by earning between 18 and 24 credits in a discipline other than the student's major discipline. Courses are selected with the approval of the student's faculty advisor.

Changing Major or Minor: A student wishing to change a major or minor field of study signs the Declaration/Change of Major/Minor Form at the Office of the Registrar. A request for a change in major or minor must be made in the Fall by October 3, 1994 and in the Spring by February 6, 1995.

Note: A student wishing to declare/change into Occupational Therapy or Nursing must obtain approval from the Chair of the respective department.

Forms for the declaration or change of a major/minor are available at the Office of the Registrar and at the department offices of Occupational Therapy and Nursing.

Academic Advising

A student is assigned a faculty member from his or her major department to serve as advisor in the selection of courses, changes in schedule, and all other academic matters. The student meets with the academic advisor during the regularly scheduled advising period each semester to review academic progress and select courses for the coming semester. During the registration period the advisor signs the registration form which the student presents in order to enroll in classes. The advisor is kept informed by the Registrar of the grades and grade points earned by each of his or her student advisees. At any time during the semester the student should contact the advisor whenever information or an opinion on an academic matter is needed.

Faculty advisors must approve all courses taken off-campus using appropriate forms available in the Office of the Registrar.

Registration and Course Information

Pre-registration for returning students is scheduled in the fall and spring of each academic year for advance course selection. The order of registration proceeds from seniors to freshmen. A late registration period is held just prior to the beginning of each semester for those students who did not register during the scheduled period. **Class determination** is made at the completion of the Fall semester and at the end of summer sessions. **A student's registration is not considered official until all financial obligations are met.**

Course Numbering: The 100 level offerings are introductory or survey courses that generally do not require prerequisites. The 200 level courses are intermediate and may require prerequisite courses. The 300 level courses are advanced and require prerequisite courses. The 400 level courses are generally for seniors and include seminars, independent study, and internships. Courses at the 900 level are open only to post-baccalaureate students.

Prerequisites represent an essential body of knowledge and skills necessary for students to succeed at an acceptable level in a course and/or are required to satisfy licensing and certification standards. Specific prerequisites are required for many courses and in certain professional studies leading to licensing and certification. Prerequisites may be waived by the instructor or department chair of the department offering the course.

It is the student's responsibility that prerequisites have been or are being satisfied at the time of registration. Fulfillment of prerequisites will be further monitored by the faculty advisor through the academic advisement procedure prior to registration. Students registering into courses without satisfying prerequisite courses may be denied professional practicum placement and certification.

Corequisites are courses which support the successful completion of certain other courses when taken concurrently. When a corequisite is listed for a course, the students are advised to register for both at the same time.

Course scheduling: The description of each undergraduate course is followed by a category number. Category 1 courses are offered every year. Category 2 courses are offered every two or three years. Category 3 courses are offered when there are sufficient student demand and available staff.

Course Credit is counted in units called semester hours. The number of semester hours carried by a particular course is indicated in the course description. Twelve to 19 semester hours of credit per semester are considered a full-time schedule of study.

Course Overload: Special permission is required for students to register for more than 19 semester hours of credit. Forms are available at the Office of the Registrar.

Course Repeat: Students who wish to repeat a course must file a course repeat form with the Registrar. Only the higher of the two grades is computed in the cumulative GPA.

Adding or Dropping a Course: Students may add or drop courses during the first two weeks of the semester. Required forms are available at the Registrar's Office. After the add/drop period, students wishing to drop a course must follow the procedure for withdrawal.

Withdrawal From Courses: W, WP, WF. A student may withdraw from a course at any point up to one week after failure warnings have been issued. Choosing to withdraw is a serious matter which may affect a student's class standing, full-time status, financial aid, etc. A student considering such a step should seek advice from the instructor or the faculty advisor. To withdraw from a course, a student must obtain a Course Withdrawal Form from the Registrar's Office and follow the prescribed steps. **Mere non-attendance at class does not constitute official withdrawal and may result in a failing grade**.

If a student withdraws from a course before the mid-semester failure warnings are issued, a "W" is recorded. After failure warnings are issued, a student may receive a "W" (Withdrawn), "WP" (Withdrawn with a passing grade), or "WF" (Withdrawn with a failing grade) as determined by the instructor. All "W" grades are permanently recorded on the student's transcript. **A student who withdraws from all courses will be considered withdrawn from the College, and must file a formal intent to withdraw with the Registrar.**

Grading System

Quality of achievement is represented by the following letter grades with associated points per semester hour of credit.

A	4.0 - points per semester hour credit
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
D-	0.7
E	0.0 - no credit, included in calculation of GPA
I	a temporary grade, not computed in the GPA
P	pass/fail option; credit, not computed in the GPA
F	pass/fail option; no credit, not computed in the GPA
W	withdrawn; no credit, not computed in the GPA
WP	withdrawn passing; no credit, not computed in the GPA
WF	withdrawn failing; no credit, not computed in the GPA

Grade Point Average (GPA): At the end of each semester (and/or summer session), a semester GPA is calculated by dividing the total number of credits attempted (excluding grades of I, P, F, W, WP, WF) into the sum of the products of points and credits for all courses taken.

A **Cumulative Grade Point Average** reflecting the entire history of a student's achievement at Worcester State College is also computed. The Cumulative GPA is a major factor in determining class membership, academic standing, and eligibility for academic honors. **Only grades earned at Worcester State College are computed in the cumulative GPA.**

Pass/Fail: Students may elect up to two courses per semester on a pass/fail basis. **Foundation courses and courses required for the major or minor may not be taken pass/fail.** Students must notify the Registrar's Office at least **four** weeks prior to the last scheduled day of classes if they intend to take a course on a pass/fail basis (policy change implemented in Fall, 1993). Similarly, students deciding to change from pass/fail status to standard grading must notify the Registrar's Office by the same deadline, **four** weeks before the final day of classes. Once a student decides to change from pass/fail status to standard grading, it is not reversible; the letter grade stands. No more than eighteen (18) hours toward the baccalaureate degree may be taken on a pass/fail basis (policy change implemented in Fall, 1994).

Independent Study: Effective Fall semester 1993, one to six hours of credit may be granted for one semester of independent study. No more than 12 credits in independent study may be granted toward the baccalaureate degree. Students who have earned more than 12 credits prior to the Fall of 1993 may count these credits toward graduation requirements. In no event may the total number of credit hours earned in independent study at Worcester State College exceed 10% of the credit hours counted toward a Worcester State College degree.

A matriculated student desiring to conduct an independent study must select an instructor and prepare a written contract containing the content and credit hours of the study. The contract should be submitted to the discipline during the pre-registration advising period but no later than the first week of the add-drop period. The instructor and members of the discipline in which the study is offered will approve or disapprove the contract. The student must provide a copy of the approved contract to the department chair, major advisor, the instructor and the registrar's office no later than the last day of the add-drop period.

Incomplete Grades: When circumstances prevent a student from completing a course on time (e.g., illness), the student is responsible for requesting an incomplete. The professor may grant an incomplete provided the student had completed a substantial portion of the course requirements. The student must make arrangements with the professor to complete the course within six weeks of the beginning of the next semester. The academic calendar indicates the deadline for resolving incompletes from the previous term. If the requirements are not met within the appropriate period, the incomplete will automatically become an "E," and so recorded on the student's permanent record.

An extension of an incomplete for one semester may be granted if circumstances still prevent the student from completing the course. In such cases, the student is responsible for obtaining the approval of the professor who must notify the Registrar in writing of his/her approval prior to the end of the initial six (6) week period. With regard to the extension of an incomplete grade, **the required course work must be completed by the student prior to the beginning of the final examination period of the semester immediately following the one in which the incomplete was originally issued.** The instructor will then have five working days within which to submit a final grade to the Registrar.

Change of Grade: Once a grade has been posted to a student's transcript that grade may be changed if, and only if, an error has been made in the calculation or transcription of the original grade. Under no circumstances will a change in grade for a student be allowed because of the submission of additional work after the course has ended. No grade change may be made after the conclusion of the semester following the semester in which the grade was originally submitted.

Transcripts

Official transcripts of coursework taken at Worcester State College may be obtained by eligible students from the Office of the Registrar with the completion of a form available for that purpose, or by writing the request. Requests must include name while attending, current name if different, Social Security number and/or student ID number, last date of attendance and whether or not the student was officially accepted into a program. Transcripts are $2.00 per copy. Payment must accompany the request in the form of a check made payable to Worcester State College.

Academic Honors

Honors List:

Full-time Students: Following the completion of each semester, the names of all students enrolled for a minimum of 12 graded credits excluding courses taken on a pass/fail basis and whose GPA for that semester is 3.5 or better will appear on the Honors List. The distinction will be noted on the student's transcript.

Part-time Students: Following the completion of each semester, the same criteria for honors for full-time students will be applied to part-time day and evening students. Students must have an academic load of a minimum of six credit hours excluding courses taken on a pass/fail basis. The names of students whose GPA for that semester is 3.5 or better will appear on the Honors List. The distinction will be noted on the student's transcript.

Any student receiving an incomplete grade in a semester is ineligible for academic honors in that semester.

Graduation Honors: Students graduating with honors must attain the following cumulative GPA based on all credits earned at Worcester State College (minimum 60 credit hours for transfer students).

Cum Laude	3.5 - 3.69
Magna Cum Laude	3.7 - 3.89
Summa Cum Laude	3.9 - 4.00

Progress Toward the Degree

Matriculated students (students admitted to the College and pursuing a formal course of study leading to the bachelor's degree, second major, certificate or professiona certification) are expected to make satisfactory and steady progress toward completion of their programs.

Academic Standing: For degree-seeking students, class membership is based upon the number of credit hours completed. Class membership determines priority for registration and participation in class events.

Class	***Credit Hours Completed***
Freshman	0- 29
Sophomore	30- 59
Junior	60- 89
Senior	90-120

Good Standing: To maintain good standing at Worcester State College, matriculated students must meet the minimum standards specified below.

College Credits*	***Cumulative GPA***
1-29	1.50
30-59	1.75
60 and over	2.00

*College credits include all credits **attempted** at Worcester State College **plus all credits accepted in transfer**. Students are reminded that only grades earned at Worcester State College are used in determining their GPA.

Probation and Dismissal: Students who fail to meet and/or maintain the minimum cumulative GPA required for good standing are placed on academic probation and are subject to the following restrictions: 1) they may not receive financial aid; 2) they may not participate in intercollegiate athletics; and 3) they may not register for more than 12 semester hours of credit per semester; and 4) they may not serve on any standing and ad hoc governance committees of the College.

Students may not be placed on probation status until they have attempted a minimum of 24 semester hours; however, students may be placed on a **warning status** if they fail to maintain the minimum standard after attempting 12 semester hours.

While on academic probation, students may continue attending the College for 12 months. Failure to improve the GPA and regain good standing after two regular academic semesters (Fall and Spring) will result in academic dismissal and separation from the College. Students dismissed from the College for academic deficiency may not register for or attend classes until 12 months have elapsed. After that time they may apply for admission through the Office of Admissions.

Appeal of Dismissal: Students may appeal for reinstatement to continue for a third semester on probation. Appeals must be made in writing to the Chair of the Academic Progress Review Board and submitted to the Registrar within five (5) days of notification. The Academic Progress Review Board will review the written appeals. The decision of the Review Board is final.

Readmission Following Academic Dismissal: Students dismissed from the College for academic deficiency may apply for readmission. Evidence of successful college study elsewhere will be considered. If readmitted to Worcester State College, the student will be on academic probation. In addition to the restrictions outlined above, readmitted students must attain a minimum GPA of 2.0 for each semester following their return. Failure to maintain a 2.0 semester GPA will result in a second separation from the College not subject to appeal.

Withdrawal From the College/Leave of Absence

Students who wish to permanently withdraw from the College or take a temporary leave of absence must complete appropriate forms in the Office of the Registrar. If the withdrawal or leave of absence is filed prior to the last day to withdraw from courses for the term, "W" will be recorded on the student's record. Students who file for leave of absence or withdrawal after the last day to withdraw from courses for the term may petition if they feel circumstances warrant the recording of "W" for all courses enrolled for that term.

Leave of Absence: Normally, a leave of absence is for one semester; however, a student may have up to one year to return to the College. Failure to return at the specified time will result in an administrative withdrawal from the College. **Matriculated students who fail to take a course during a calendar year will be administratively withdrawn from the College.**

Readmission: Should a student decide to return to Worcester State College after having filed a withdrawal or after having been administratively withdrawn from the College, he/she must file for readmission through the Office of Admissions.

Academic Reprieve Policy

The Academic Reprieve Policy applies to former Worcester State College students returning to complete baccalaureate degree programs a minimum of three academic years after their last completed semester at Worcester State College. This policy is designed to facilitate program completion for students whose previous academic records were so poor as to put them in jeopardy of academic probation or dismissal immediately upon readmission. A student may exercise this academic reprieve option only once.

A student meeting criteria for eligibility must file a petition form, available in the Office of the Registrar, requesting reprieve of eligibility course work at the College, either at the time of readmission or before the close of the first semester of re-enrollment. A maximum of 60 credits may be applied toward graduation from the student's previous enrollment at the College. In order to be applied, those courses must have received a passing grade. Credit for courses in the student's major is contingent upon approval by the Department Chair. None of the grades associated with courses given credit under the academic reprieve policy will be calculated in the student's GPA; however, all course work will be recorded on the transcript. A student selecting the reprieve option will be required to meet degree requirements of the catalog in effect on the date of the student's application for readmission. Those electing the reprieve option may qualify for honors at graduation upon the completion of a minimum of 60 graded credits.

Undergraduate Grade Appeal Procedure

Prior to invoking the use of the undergraduate grade appeal procedure, individuals should exhaust all informal means available to resolve questions concerning specific grades.

The undergraduate grade appeal procedure is designed to resolve questions regarding student grades when one or more of the following is at issue: 1) there is reason to

believe that a mechanical error in calculating a grade has occurred; 2) there is reason to believe that a grade has been calculated in a manner which is inconsistent with the stated grading policy.

The appeal procedure may not be used to challenge a grade which results from a faculty member exercising usual and customary professional judgment in the evaluation of student work.

Step 1
Within ten working days of the availability of the grade in question, the student shall request in writing a meeting with the instructor. In the case of an end-of-semester grade, the student shall request such a meeting no later than ten working days after the beginning of the next semester. The instructor shall arrange to meet with the student within ten working days of the receipt of the request.

Step 2
If the matter is not resolved to the satisfaction of the student at Step 1, then, within ten working days of the meeting in Step 1, the student shall file a written request to review the matter with the appropriate Department Chair.

Step 3
If, within ten working days of the receipt of the request in Step 2, the Department Chair is unable to resolve the matter to the satisfaction of all parties, then either party may, within ten working days, file a written request to review the matter with the Associate Vice President, Academic Affairs.

Step 4
If, within ten working days of the receipt of the request in Step 3, the Associate Vice President is unable to resolve the matter to the satisfaction of all parties, then either party may, within ten working days, file a written request to review the matter with the Academic Vice President.

Step 5
Within ten working days of the receipt of the request in Step 4, the Academic Vice President shall inform the student, faculty member, Department Chair, and Associate Vice President of the results of his review.

The appeal process ends at this point.

Plagiarism and Cheating

Plagiarism and cheating consist of any attempt by a student to represent the work of someone else as his or her own. It includes, but is not limited to submitting, copying, or substantially restating the work of another person or persons in an oral or written work without citing the appropriate source; collaborating with someone else in academic endeavor without acknowledging that contribution; and copying the answers of another student in an examination. Worcester State College will not tolerate plagiarism or cheating in the classroom in any fashion.

Attendance

All students are expected to attend and participate in all class meetings and laboratory sessions. In the event that illness or some other emergency prevents a student from attending class, the student should contact the instructor directly.

Worcester State College abides by Chapter 375 of the Commonwealth of Massachusetts, An Act Excusing the Absence of Students for Their Religious Beliefs. Section 2B of this law states: "Any student in an educational or vocational training institution other than a religious or denominational educational or vocational training institution, who is unable, because of his religious beliefs, to attend classes or to participate in any examination, study, or work requirement on a particular day shall be excused from any such examination, study or work requirement, and shall be provided with an

opportunity to make up such examination, study, or work requirement which he may have missed because of such absence on any particular day; provided, however, that such makeup examination or work shall not create an unreasonable burden upon such school. No fees of any kind shall be charged by the institution for making available to the said student such opportunity. No adverse or prejudicial effects shall result to any student because of his availing himself of the provisions of this section."

Transportation to Practicum Sites

Students are responsible for providing their own transportation for off-campus learning experiences.

Enhanced Learning Opportunities

Credit by Examination: In addition to the Advanced Placement examinations administered by the College Entrance Examination Board through high schools, other opportunities to challenge subject areas for credit are available.

College Level Examination Program (CLEP): These standardized examinations offered on campus through the Educational Testing Service confer college credit in two categories—general examinations, which include English, humanities, mathematics, social sciences, and natural sciences; and examinations in specific subjects. Additional information and applications are available through the Counseling and Career Services Center.

National League for Nursing (NLN) Examinations: The NLN examinations are administered to candidates for the upper division program in nursing. Consult the Chair, Nursing Department, for further information.

American Chemical Society: Students may challenge Chemistry for the Allied Health Professions by contacting the Chemistry Department, New York Board of Regents. In some cases, credit can be awarded for these examinations.

Internships and Professional Experiences: An internship is a form of experiential learning that permits a student to convert theory into action. An internship may be undertaken with or without the expectation of academic credit. If credit is to be granted, however, the internship must be monitored and evaluated by the appropriate College department and a grade awarded at its completion. The internship can be constructed according to any of a number of models including professional apprenticeships, work experience, field research, career exploration, socio-political action and service learning. Because students must be actively involved in the development of an internship placement—by developing a resume, preparing necessary correspondence, or being interviewed—they should contact the faculty sponsor in the semester prior to the proposed internship. The internship contract sets forth the responsibilities of each party so that each understands his or her specific role in the educational field experience. Each program is designed to accommodate and articulate the personal goals of the student, the academic goals of the department, and the needs of the participating off-campus organization. Information about available internships is regularly relayed to, and publicized in, appropriate academic departments.

Engineering Science Transfer Program: In cooperation with University of Massachusetts - Dartmouth, the University of Massachusetts - Lowell and Worcester Polytechnic Institute (WPI), the College offers engineering transfer programs for students interested in obtaining a bachelor's degree in engineering. Students completing the first two years of the program at Worcester State College with a GPA of 3.0 or higher will be guaranteed admission to the University of Massachusetts - Dartmouth as juniors in the Civil, Electrical, or Mechanical Engineering Programs; to the University of Massachusetts - Lowell as juniors in the Chemical, Civil or Mechanical Engineering Programs. The WSC/WPI Engineering Program is a five year plan (three years at WSC and two years at WPI). Interested students must be full-time freshmen at Worcester State College and must apply to Worcester Polytechnic Institute before March 1 of their freshman year. Accepted students are assigned an advisor at each college. Together the advisors guide the student in the selection of courses to meet the requirements for transfer to Worcester Polytechnic Institute.

Pre-Law Program: A program of preparation for law school is available through the Department of History and Political Science.

Pre-Medical, Pre-Dental, Pre-Veterinary Advisory Program: The College offers an advisory program for students interested in preparing for medical, dental or veterinary studies. Students interested in medicine or dentistry may pursue study in any of the academic majors of the College. It is the obligation of the students to check with the professional school(s) to which they intend to apply for exact requirements. Nearly all medical and dental schools require one year each of the following laboratory courses: General Chemistry, Organic Chemistry, Biology and Physics. In addition, many schools require two years of a modern foreign language, one year of English (including composition), and Mathematics through Calculus. Regardless of major, the student is advised to select CH 120 and CH 121, General Chemistry I and II, BI 151, General Botany and BI 152, General Zoology.

Students interested in medicine, dentistry, veterinary medicine, optometry, podiatry or osteopathy should consult both the major advisor and the Chair of the Department of Physical and Earth Sciences as soon as possible following matriculation. Students are advised to complete their science requirements before the end of their junior year and to take the national pre-professional exam (e.g., MCAT, DAT) during the Spring semester of their junior year. During the junior year, students must arrange an interview with the Pre-Medical and Pre-Dental Advisory Committee in the Department of Physical and Earth Sciences

Summer Programs: Worcester State College offers a variety of undergraduate and graduate courses during the summer months. Two six-week sessions, the first beginning in early June and the second beginning in early July, provide intensive enrichment opportunities for students working toward completion of degree requirements or upgrading and enhancing professional skills. The summer schedule is usually available in April.

Worcester Consortium for Higher Education: Ten Central Massachusetts colleges, along with a number of Worcester area organizations, comprise the Worcester Consortium for Higher Education. In addition to cultural activities, interdisciplinary programs, and other opportunities, the Consortium provides a cross-registration service whereby full-time day students of member colleges may register at no additional cost for one course per semester at another campus. A Consortium shuttle bus provides transportation among campuses throughout the day. Admission into Consortium classes is on a space-available basis. Cross-registration information is available from the College Registrar.

Members of the Consortium, in addition to Worcester State College, are Anna Maria College, Assumption College, Becker Junior College, Clark University, College of the Holy Cross, Quinsigamond Community College, Tufts University, University of Massachusetts Medical School, and Worcester Polytechnic Institute. Among other organizations participating with the Consortium to enrich local college curricula are the American Antiquarian Society, Worcester Craft Center, The International Center, Old Sturbridge Village, radio station WICN, Worcester Art Museum, Worcester Foundation for Experimental Biology, Worcester Historical Society, Worcester Horticultural Society, and New England Science Center.

College Academic Program Sharing (CAPS): A student enrolled at any of the nine Massachusetts State Colleges may enroll for up to 30 credits at any other state college without going through formal registration procedures. Credits are automatically transferred to the student's home institution, and the student pays no additional tuition or fees. To take part in the program, degree-seeking students must have attained sophomore status and be in good academic standing at Worcester State College. For further information consult the Registrar.

New England Regional Student Program: The College participates in a regional cooperative program administered by the New England Board of Higher Education. The New England Regional Student Program offers qualified residents the benefits of in-state tuition plus 50% in certain programs at any New England state university, college, two-year college, or technical institute. The purpose of the program is to expand

higher educational opportunities for New England residents by making available, on an equal basis, those programs not commonly offered at every institution. Information about the program can be obtained from the Admissions Office, from any guidance counselor, or from the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111.

American Antiquarian Society Seminar: Each year the American Antiquarian Society and five Worcester Colleges—Assumption College, Clark University, College of the Holy Cross, Worcester Polytechnic Institute and Worcester State College—sponsor a research seminar at the Society library. The seminar is conducted by a scholar familiar with the Society's extensive early American History collection, and the seminar topic is related to his or her field of research. Normally two students are chosen from each of the five colleges to participate. The seminar topic and research methods combine several disciplines, and students from a wide variety of majors have participated in this unusual undergraduate opportunity. Further information is available from the Department of History and Political Science.

Reserve Officer Training Corps (ROTC)

Air Force

Worcester State College students have the opportunity to participate in Air Force ROTC through the AFROTC Detachment at Worcester Polytechnic Institute. The Air Force ROTC program is voluntary and open to all students who seek the challenge of being an officer in the United States Air Force upon graduation from college.

The Air Force ROTC academic program includes a one-hour, non-credit course both semesters of the freshman year; a one-hour, one credit course both semesters of the sophomore year; and three-hour, three credit courses each semester of the junior and senior years. The courses cover Air Force organization and history the freshman and sophomore years, and management, leadership, American defense policy, regional studies, and military law during the junior and senior years. Additionally, AFROTC cadets participate in a one and one-half hour military training period each week.

All AFROTC cadets also attend Air Force ROTC field training during the summer between their sophomore and junior years. Cadets are paid while at field training and will receive travel pay to and from the Air Force base hosting field training. Students participating in the first two years of AFROTC will attend a four-week field training session, while students entering AFROTC during their sophomore year will attend a six week training program.

By participating in AFROTC students can compete for scholarships ranging from two years to three years in duration. These scholarships cover tuition, most fees, and textbooks. A monthly tax-free subsistence allowance of $100 is paid to all scholarship students, and to all non-scholarship cadets in the last two years of the Air Force ROTC program.

To participate in Air Force ROTC students must be United States citizens (or naturalized by the end of their sophomore year), of good moral character, and in sound physical condition. Students interested in Air Force ROTC should write to the Professor of Aerospace Studies, AFROTC Detachment 340, Worcester Polytechnic Institute, 100 Institute Road, Worcester, MA 01609-2280, or call (508) 831-5747 for further details and the latest information on scholarship opportunities.

Army

The Army Reserve Officers' Training Corps (ROTC), is offered by Worcester Polytechnic Institute and is available to all Worcester State College students. American citizens who are physically qualified and who satisfactorily complete the entire four-year program will be commissioned in the United States Army. Graduates serve as second lieutenants in the Active Army or the reserve components. Delayed entry on active service for the purpose of graduate school is available. Military science is designed to complement other instruction offered by Worcester State College.

Emphasis throughout is on the development of individual leadership abilities and preparation of the student for future important leadership roles in the Army. There are two variations of ROTC available to the student who desires to participate: a four year program, in which students participate in required military science courses and activities for four academic years. Attendance at a six-week advanced training camp is required between the third and fourth year.

The two-year ROTC program is intended for students in their second year of college who want to enroll in ROTC in their junior year. It begins with a six-week basic summer training camp, with pay, between the sophomore and junior years. Upon successful completion of basic camp, the student participates in the third year of ROTC and attends the advanced camp during the next summer. As an alternative, an enlisted member of the Army National Guard or Army Reserve who has completed basic training can qualify for the two-year ROTC Simultaneous Membership Program (SMP).

All students enrolled in the last two years of the program receive a tax-free cash stipend of $100 each month in school. Two- and three-year Army ROTC scholarships are available for students who wish to apply. The scholarship is based on the achievements of the applicants, not the financial status of their families. The ROTC scholarship covers tuition and most required fees, paid directly to the college. It also pays directly to the student $450 per year for books and a $100 monthly cash stipend, each month in school. Both are tax free. Members of Army Reserve and National Guard may participate in the ROTC/SMP as college juniors, receiving a reserve officer commission upon successful completion of the military science requirements. SMP cadets remain members of their unit and earn E-5 drill pay in addition to the tax-free stipend of $100 per month through ROTC. Additionally, Massachusetts National Guard ROTC/SMP members receive free tuition at state schools.

Students interested in Army ROTC should contact the Professor of Military Science, Military Science Department, Worcester Polytechnic Institute, 100 Institute Road, Worcester, MA 01609, or call (508) 752-7209. Offices are located in Room 28A, Harrington Auditorium.

Navy

Programs leading to a commission as an officer in the United States Navy or Marine Corps are available to all qualified Worcester State College male and female students through cross-enrollment in the Naval Reserve Officers Training Corps Unit at the College of the Holy Cross. Students can participate as Scholarship or College Program (non-scholarship) students in either a four-year or two-year Naval ROTC program. The basic qualifications for enrollment in the NROTC Program are United States citizenship, good moral character, and sound physical condition.

High school students, in the Fall of their senior year,can apply through the national competition for three- and four-year Naval ROTC Scholarships. If selected, they receive full tuition, payment of most fees, and a $100 per month tax-free stipend. Along with their college degree requirements, Naval ROTC students are required to complete one Naval Science course each semester and also participate in one two-hour weekly unit drill period. Additionally, scholarship NROTC students participate in summer training cruises after their freshman, sophomore, and junior years. The summer cruises are four to six weeks in length, with pay and allowances, and afford an opportunity for practical experience and travel. Upon successful completion of the NROTC program, graduates are commissioned ensigns in the Navy or second lieutenants in the Marine Corps and are required to serve at least four years on active duty.

First year and sophomore students can apply for the two-year Naval ROTC Scholarship Program during their first two years in college. If selected, they receive full tuition, payment of most fees, and a $100 per month tax-free stipend. They attend a six week indoctrination course during the summer preceding their junior year at the Naval Science Institute at Newport, Rhode Island. Along with their remaining college degree requirements, they are required to complete one Naval Science course each semester and also participate in one two-hour weekly unit drill period during their junior

and senior years. They are required to serve at least four years on active duty after commissioning.

Students can also participate as College Program (non-scholarship) students in either the four-year or two-year Naval ROTC Program. Students apply directly to the Professor of Naval Science at the College of the Holy Cross for enrollment. The program provides military uniforms and during the junior and senior years a subsistence allowance of $100 per month. College Program students are required to complete one Naval Science course each semester and also participate in one two-hour weekly unit drill period. They also participate in one summer training cruise preceding their senior year. Once enrolled in the NROTC Program, College Program students are eligible to apply for scholarships based on their academic record and performance in the Naval ROTC Unit. Scholarships of one, two, and three years are available.

Upon successful completion of the program, College Program students are commissioned in the Naval or Marine Corps Reserve and are required to serve at least three years on active duty after commissioning. For additional information about the Naval ROTC Program, contact the Professor of Naval Science, Naval ROTC Unit, College of the Holy Cross, Worcester, MA 01610-2389; (508) 793-2434.

Graduate Studies

Graduate Education

Graduate education is both exciting and challenging. Academic expectations are higher than at the undergraduate level, but the career rewards in terms both of financial gain and self esteem are also higher.

At the graduate level students begin to focus explicitly on a single discipline or professional program. Here students become knowledgeable enough about their field to be considered masters in it. Indeed, some contribute to the world of scholarship through research leading to a thesis or publication. Those students pursuing a practice-oriented master's degree demonstrate mastery through a project, a practicum, or an internship. While for many students a master's degree serves as a terminal degree, others continue at the doctoral level where new contributions to the world of scholarship are required.

Graduate students seriously pursue a specific area of study. There are no longer broad distribution requirements to fulfill as there are at the undergraduate level. Students acquire knowledge and demonstrate expertise in their field through the completion of course work, seminars, colloquia, field placements, and internships, as appropriate to their area of study.

One goal of graduate study is to prepare the student to become an independent scholar or practitioner. Graduate students are expected not only to read assigned articles, but to search for other related articles to obtain a deeper understanding of the issues. In some fields, they are expected to design, implement and evaluate experiments, drawing conclusions and making recommendations. As in course work, field work or internship experiences at the graduate level are intensive and integrative in nature. Graduate students are expected to be reflective and creative in approaching all graduate learning experiences.

Some scholars consider perseverance the sine qua non of success in graduate school. More is expected of the graduate than of the undergraduate student. Adapting to the more rigorous standards and more intensive learning experience can be challenging and intellectually productive. Since research often leads to unexpected discoveries which may require the student to rethink and redesign the research project, dedication and perseverance are absolutely necessary. Preparation for exams, which is done on the student's own time without faculty supervision, also demands consistent, self-motivated hard work. All of these experiences provide a gateway to further personal and professional development.

A desirable feature of graduate education is mentorship: a relationship between a professor and a student in which the professor not only advises the student about reaching scholarly or practical goals, but also joins in discussion of ideas, theories and practices within the student's chosen field. While mentorship is not a requirement for either faculty or students, those professors and graduate students who take part in it gain professionally from the experience.

Graduate education offers an opportunity for students to explore new academic and professional horizons and to experience the joy of learning and of scholarship. There is an excitement of discovery that is contagious, and those who catch it are justly proud of their achievement.

Degree Programs

Master of Science in Biology
Master of Science in Human Service Management
Master of Science in Speech-Language Pathology
Master of Education in: Early Childhood Education
Elementary Education
English
Health Education
History
Secondary Education

Admission

Applicants for admission to graduate studies must have completed a baccalaureate degree program at an accredited institution. To be considered for admission, applicants must also meet the minimum eligibility requirements following the Eligibility Index below. The Eligibility Index combines scores on the Miller Analogies Test (MAT) and/or the Graduate Record Examination (GRE) with the undergraduate GPA.

MAT Score	GPA	GRE Score
55 -	2.45 -2.54	890 -
50 - 54	2.55 -2.64	860 - 889
45 - 49	2.65 -2.74	830 - 859
40 - 44	2.75 -2.84	800 - 829
35 - 39	2.85 -2.94	770 - 799
30 - 34	2.95 -3.04	740 - 769
25 - 29	3.05 -4.00	710 - 739

Applicants who have already received a graduate degree from an accredited institution in addition to a baccalaureate will be exempted from taking the MAT or GRE. Applicants from foreign countries in which English is not the language of instruction, whose baccalaureate GPA is 2.75 or above, may have the requirement of the MAT or GRE waived. Such students will, however, be required to achieve a score of 550 or above on the Test of English as a Foreign Language (TOEFL).

Persons denied admission because they do not meet the above stated eligibility index, but who exhibit strong credentials for their selected field of study, will be considered for an alternate form of admission. Following the admissions review, applicants will be advised in writing if this alternative is available to them.

Students may obtain application forms from the Office of Admissions, Worcester State College, 486 Chandler Street, Worcester, MA 01602-2597. Phone requests for application materials may be made by calling (508) 793-8120. Each applicant must supply the following materials:

- an official transcript with calculated GPA from the institution awarding the baccalaureate;
- an official transcript from each graduate institution awarding degree(s) or course credit beyond the baccalaureate(All transcript materials requested by the applicant become the property of Worcester State College and cannot be released to the applicant nor to other institutions or agencies.);
- a completed application form for graduate study along with remittance of the application fee ($10.00 for Commonwealth residents, $40.00 for all others);
- two current letters of recommendation;
- evidence of completion of applicable departmental admission requirements;
- where applicable, the results of the GRE or MAT, and/or TOEFL.*

*Since up to six weeks may elapse between the test date and receipt of scores, applicants should take the examination well in advance of the application deadline. The

Graduate Record Examination is administered at the College. GRE bulletins may be obtained by calling the Counseling and Career Services Center (508) 793-8072.

The Miller Analogies Test (MAT) is offered at Worcester State College by appointment only. Applicants may call the Counseling and Career Services Center at (508) 793-8072 for information about registration for the MAT.

Application Deadlines	Entrance Period
April 15	Summer Session
June 15	Fall Semester
November 1	Spring Semester

Only complete application folders will be reviewed. All application materials become the property of Worcester State College and will not be returned. Ordinarily, applications received after a deadline will be considered for the following semester.

Note: The application deadline for the Master of Science in Speech-Language Pathology program is March 15 for entrance in the Fall semester. Because of the sequence of course offerings, the Fall semester is the only entrance period for the program.

Pre-entrance immunization requirements: Massachusetts State Law (Chapter 76, Section 15C) requires that each full-time graduate student born after 1956 present evidence of immunization in order to register for classes.

See page 14 under Health Services Office, for additional information.

Health Insurance: Massachusetts General Laws, Chapter 15A requires that certain students enrolled in institutions of higher education carry health insurance under a qualifying student health insurance program. Coverage for degree-seeking graduate students is required if they register for seven (7) or more semester hours of credit. For additional information, see page ## about participation in and charges for the College's plan. (508) 793-8075.

Financial Aid

Generally funds for graduate students are limited to the Federal Stafford and Perkins Loan Programs in addition to the Federal Work Study Program. Applicants who are taking courses that are pre-requisites for graduate degree, may be eligible for Stafford Loan funds for up to one year. Applicants in this category should contact the Financial Aid Office -508-793-8056.

Graduate Assistantships - Graduate assistantships are available for matriculated students taking at least six semester hours each semester. For information and an application call the Graduate Office (508) 793-8125.

Degree Requirements

Please refer to specific program requirements.

Matriculated vs Non-Matriculated Status: A matriculated student is one who has been accepted into and is enrolled in a degree program at the College.

Non-Matriculated status indicates that a student has registered for and is taking a course(s) at the College without being formally accepted into a program. A graduate applicant is allowed to take courses prior to being accepted into a graduate degree program, but no more than 4 courses will be permitted to apply toward the master's degree.

Residency: All candidates for the masters degree must complete a minimum of 33 semester hours of credit, all of which must be earned exclusively in graduate-level courses. Only credits for which students have earned a grade of "B-" or higher within a two-year period immediately prior to the effective term of admission are transferable

from an accredited institution, including credits earned at Worcester State College. A maximum of 12 such graduate credits may be accepted. Acceptance of transfer credits is the responsibility of the full-time faculty in the relevant discipline in conjunction with the Graduate Education Council. **In all instances, no more than 12 semester hours of credit may be earned at any location other than the Worcester campus of Worcester State College.**

Term Limit: All requirements for a graduate program must be completed within six years of the effective term of admission to a program. Candidates eligible for graduation must signify their intention by completing and submitting an Intent-To-Graduate form and include a check for the $15.00 Commencement fee. The fee covers the cost of the diploma, invitations and other expenses associated with graduation. Deadlines for filing are: March 15 for a May graduation, June 15 for an August graduation, and October 15 for a December graduation. If candidates plan to participate in the May Commencement they will need to complete a regalia order form and pay the cost of the cap, gown and hood (currently $17.35). Both forms are available in the Graduate Office or candidates may request to have them mailed to them.

Comprehensive Examination: To receive a Master of Science or Master of Education degree, a candidate is required to pass an oral or written comprehensive examination in his or her field of concentration. In place of a comprehensive examination, the student may elect to complete and defend a thesis in those programs for which such an option is designated. Refer to program descriptions in this catalog for additional information.

Academic Standing: Matriculated students will be dismissed from their graduate program if they do not maintain a cumulative GPA of 2.75, or if they receive three grades of C+ or lower. In addition, grades below a B- are not acceptable for degree credit. Dismissal requires absence from the College for one semester, pending action on an appeal, if submitted.

Academic Policies and Procedures

Independent Study: No more than three semester hours of credit in independent study may be applied to the satisfaction of requirements of any graduate degree program. Independent study contracts, available in the Office of Graduate Studies, must be completed and filed with the Registrar by the last day of registration for a semester.

Attendance: Because each class meeting constitutes a substantial portion of the work in an evening or summer course, students are expected to attend all scheduled class meetings. If absent for any valid reason, the student should inform the instructor and arrange to make up classwork and assignments.

Leave of Absence: Matriculated students may request a leave of absence for up to one year by completing a leave of absence request form available in the Office of Graduate Studies. In extenuating circumstances, at the discretion of the Executive Director of Graduate and Continuing Education, a student may be granted an extension. Approved leave time is not counted against allowable program length.

Transcripts: Official transcripts of course work taken at Worcester State College may be obtained by eligible students from the Office of the Registrar with the completion of a form available for that purpose, or by writing the request. Requests must include name while attending, current name if different, Social Security number and/or student ID number, last date of attendance and whether or not the student was officially accepted into a program. Transcripts are $2.00 per copy; "rush" transcripts are $4.00 per copy Payment must accompany the request in the form of a check made payable to Worcester State College.

Grading System: The grading system for graduate studies employs the letter grades A, A-, B+, B, B-, C+, C, C-, D+, D, D-, E (failure), W (withdrawn), and I (incomplete). Grade points associated with each letter grade and description of computation of the grade point average can be found on page 30.

Incomplete Grades: When circumstances prevent a student from completing a course on time (e.g., illness), the student is responsible for requesting an "incomplete." The professor may grant an incomplete provided the student had completed a substantial portion of the course requirements. The student must make arrangements with the professor to complete the course within six weeks of the beginning of the next semester. The official calendar for the year indicates the date to resolve incompletes from the previous term. If the requirements are not met within the appropriate period, the incomplete will automatically become an "E," and is so recorded on the student's permanent record.

An extension of an incomplete for one semester may be granted if circumstances still prevent the student from completing the course. In such cases, the student is responsible for obtaining the approval of the professor who must notify the Registrar in writing of his/her approval prior to the end of the initial six week period. With regard to the extension of an incomplete grade, **the required course work must be completed by the student prior to the beginning of the final examination period of the semester immediately following the one in which the incomplete was originally issued.** The instructor will then have five working days within which to submit a final grade to the Registrar.

Withdrawal from Courses: Official notice of withdrawal from a course must be made on a form available at the Registrar's Office. The official date of withdrawal is that on which the completed form is received by the Registrar's Office. The deadline for withdrawal from a course is indicated in the official calendar. A grade of "W" will be recorded in each case of a withdrawal from a course. **Failure to attend class meetings does not constitute official withdrawal from a course, and a student who merely ceases attending will receive the grade of "E."**

Course Repeat: Students who wish to repeat a course must file a course repeat form. These forms are available in the Graduate Studies Office (A2I0). Only the higher of the two grades is computed in the cumulative GPA. A course may be repeated only once.

Change of Grade: Once a grade has been posted to a student's transcript, that grade may be changed if, and only if, an error has been made in the calculation or transcription of the original grade. Under no circumstances will a change in grade for a student be allowed because of the submission of additional work after the course has ended. No grade change may be made after the conclusion of the semester following the semester in which the grade was originally submitted.

Graduate Grade Appeal Procedure

Prior to invoking the use of the graduate grade appeal procedure, individuals should exhaust all informal means available to resolve questions concerning specific grades.

The graduate grade appeal procedure is designed to resolve questions regarding student grades when one or more of the following is at issue: 1) there is reason to believe that a mechanical error in calculating a grade has occurred; 2) there is reason to believe that a grade has been calculated in a manner which is inconsistent with the stated grading policy.

The appeal procedure may not be used to challenge a grade which results from a faculty member exercising usual and customary professional judgment in the evaluation of student work.

Step 1
Within ten working days of the availability of the grade in question, the student shall request in writing a meeting with the instructor. In the case of an end-of-semester grade, the student shall request such a meeting no later than ten working days after the beginning of the next semester. The instructor shall arrange to meet with the student within ten working days of the receipt of the request.

Step 2
If the matter is not resolved to the satisfaction of the student at Step 1, then, within ten working days of the meeting in Step 1, the student shall file a written request to review the matter with the appropriate Department Chair.

Step 3
If, within ten working days of the receipt of the request in Step 2, the Department Chair is unable to resolve the matter to the satisfaction of all parties, then either party may, within ten working days, file a written request to review the matter with the Executive Director of Graduate and Continuing Education.

Step 4
If, within ten working days of the receipt of the request in Step 3, the Executive Director of Graduate and Continuing Education is unable to resolve the matter to the satisfaction of all parties, then either party may, within ten working days, file a written request to review the matter with the Academic Vice President.

Step 5
Within ten working days of the receipt of the request in Step 4, the Academic Vice President shall inform the student, faculty member, department chair, and Executive Director of Graduate and Continuing Education of the results of his review.

The appeal process ends at this point.

Academic Dismissal Appeal Procedure

If dismissed for academic deficiency, students may appeal for reinstatement. Appeals must be made in writing to the Chair of the Graduate Education Council, and must be submitted within ten working days following notification of dismissal. Students will be notified in writing of the decision of the Council.

1. A student's written appeal to the Council must include: the student's name/ Identification Number/program; a discussion of the circumstances contributing to the academic deficiency; and permission for Graduate Education Council to review academic records.
2. The Graduate Council will consider the appeal at its next schedule meeting.
3. In its written response to the student, the Council will outline the conditions/rationale of its action:
   a) if the appeal is granted, Council will outline conditions of reinstatement and time frame for program continuation/ completion
   b) if the appeal is denied, the student is administratively withdrawn from the program; he/she may not re-apply to the same program; and cannot apply for re-admission to another program for I2 months.
4. A second dismissal for academic deficiency is not subject to appeal.
5. Evaluation of academic standing will take place after each semester/session.

Financial Information

Tuition and Fees

Tuition and fee schedules are presented separately for undergraduate day programs, and evening undergraduate, graduate and summer programs. Certain students may be eligible for tuition waivers. Information about eligibility requirements can be found in the section on financial aid.

Undergraduate State-supported Programs

In addition to the non-refundable application fee of $10.00 for Commonwealth residents, $40.00 for nonresidents, students must upon acceptance pay a $50.00 non-refundable tuition deposit that will be credited towards tuition upon matriculation. Students are billed for all semester charges following completion of registration.

Payment of all charges is due in full by the due date specified on the student bill. Students whose accounts have not been paid in full, or otherwise cleared by the finance office, will be subject to cancellation of class enrollment. The College reserves the right to withhold grades, transcripts, and/or diplomas from any student with outstanding financial obligations.

Payment may be made by check, money order, or credit card (MasterCard, Visa). If payment is made by check, the cancelled check will serve as the student's receipt. If a student remits payment with a check that is returned because of insufficient funds, he or she must make any future payments to the College in the form of a certified check, bank check, or money order. **A returned check fee of $15.00 will be imposed for each instance of a personal check in payment of any College charge that is returned not honored**. Students will incur all costs of collection if the College must place their accounts with a collection agency.

Monthly payment plans through external agencies are available for families who wish to avoid a large outlay of cash at the beginning of each semester. For further information, contact the Bursar's Office.

Tuition and fees are subject to change by vote of the Legislature, Higher Education Coordinating Council, or Board of Trustees.

Tuition

	Residents of Massachusetts	Non-residents of of Massachusetts
Full-time status 12 or more credits per semester	$704.00	$2771.00
Part-time status fewer than 12 credits per semester	$ 58.67/credit	$ 230.92/credit

Tuition for those participating in the New England Regional Student Program is $1,056 for full-time students and $88.00/semester hour of credit for part-time students.

Full-time students are assessed the following fees each semester (fees are current for Fall, 1994):

General Fee	$580.00
Student Activity Fee	22.50
Student Health Service Fee	20.00
MASSPIRG (optional)	5.00

Part-time matriculated students are assessed the same fees on a prorated basis currently totalling $51.89 per semester hour of credit.

The following fees are payable when applicable:

Student Teaching	$75.00 - upon enrollment in practicum
Residence Hall Activity	$10.00 - residence hall students only
Parking (Residence Hall Students)	$ 2.00 - upon issuance of decal
Transcript	$ 2.00 - per copy
Rush Transcripts	$ 4.00 - per copy

Student Health Insurance

Undergraduate degree-seeking students enrolled in nine (9) or more credits per semester are required, by State regulation, to carry individual health insurance coverage. Students will be enrolled in the College sponsored plan, and billed accordingly. For the 1994-95 academic year, the cost is $555.00 **The insurance charge is not adjustable and is non-refundable after the add-drop period. Students who have appropriate alternative coverage must complete and submit a waiver form at the time of payment to waive the mandatory insurance premium**.

Room and Board

Students admitted to Worcester State College as resident students will be notified by the Director of Admissions. The information will be made available to the Residence Hall Staff and subsequent correspondence regarding residence hall assignments should be sent to the Director of Housing and Residence Life. Freshman residents, including freshman transfer students, are not permitted to have cars on campus.

Students residing in campus housing are assessed a room fee ($1320 effective Fall, 1994) and a food service fee ($620 effective Fall, 1994) each semester. Resident freshmen and transfer students, and all Dowden Hall residents, are required to purchase the food service plan for one academic year. Upon acceptance, each resident student must pay a $50 non-refundable room deposit and a $100 damage deposit:

For Freshmen and Transfer Students

1. A separate check for $50 (non-refundable) must be submitted to the Admissions Office. Payment of this deposit and the resident's receipt of an agreement signed by the College will reserve a space for occupancy; the deposit is applied to the room charge for the following semester.
2. The $100 damage deposit will be billed with room rent.

For Returning Residents

1. A $50 room deposit (non-refundable) along with a signed Occupancy Agreement Form must be submitted at the time of room selection for the following year; the deposit is applied to the room charge for the following semester.
2. The $100 damage deposit will be billed with room rent.
3. Purchase of the meal plan is optional for returning Chandler Village students not considered freshmen. Dowden Hall students must purchase meal plans.

Food Service Plan: The meal plan is a declining balance system that permits the user to purchase food on an a la carte basis, rather than selecting a specific number of meals per week. Resident freshman, resident transfer students, and students residing in Dowden Hall are required to be on the full food service plan for one academic year. All other resident and commuter students have the option of purchasing a food service plan starting at $100. Food Service cards are issued to students at the beginning of the initial semester on the food service plan, or as needed. There is a charge for replacement of lost food service cards.

For All Students

An additional non-refundable $100 room deposit is due by June 1, to secure a room for the following Fall semester; the deposit is applied to the room charge for that semester.

Waiting List Procedure: Freshmen and transfer students may submit to the Admissions Office a $50 room deposit along with a signed Occupancy Agreement Form to be considered for room assignment. All other students may submit to the Residence Hall Office a $50 room deposit along with a signed Occupancy Agreement Form to be considered for room assignment. Students' names will be placed on a waiting list until a room becomes available; assignments will be made on a first come, first served basis.

Evening Undergraduate, Graduate, and Summer Programs

Tuition for undergraduate courses is currently $103 per semester hour of credit. Tuition for graduate courses is currently $113 per semester hour of credit. Tuition is payable at the time of registration and may be made by bank check, money order, personal check, or credit card (MasterCard or Visa); cash will not be accepted.

Fees are charged and payable when and as applicable:

Parking (Residence Hall Students)	$ 2.00—upon issuance of decal
Commencement	$ 15.00—degree candidates
Placement	$ 10.00—first semester of attendance
Transcript	$ 2.00—per copy
(Rush Transcript	$ 4.00—per copy)
Laboratory Instruction	$ 55.00—per course
Nursing Clinical	$320.00—per course
Field Work Supervision/Internships/ Teacher Education Practicum	$ 15.00—per credit hour

Tuition and fee charges are subject to change by the Board of Trustees.

Course Cancellation/Processing of Tuition Refunds

Worcester State College reserves the right to cancel any course for which there is insufficient enrollment. Students may transfer to another course by completing appropriate forms in the Registrar's Office. Processing of tuition refunds takes two to four weeks. Refunds are sent to the student at the address of record.

Student Health Insurance

Undergraduate degree seeking students enrolled in nine (9) or more credits per semester, and graduate degree seeking students enrolled in seven (7) or more credits per semester are required by State regulation to carry individual health insurance coverage. Students without such coverage will be billed a health insurance premium (currently $555.00 per year) for mandatory enrollment. **Students who already have appropriate coverage must complete a waiver of insurance at the time of payment in order to waive the mandatory insurance premium. Any student not completing a waiver will be billed for insurance. This charge may not be adjusted, and is non-refundable after the add/drop period.**

General College Refund Policy

Applicability

This refund policy applies to all full-time and part-time students enrolled in regularly scheduled classes at Worcester State College **other than** those attending Worcester State College for the first time (in the current academic year) **and** receiving financial aid. This policy applies to all tuition, room, board, fees, and other standard billed charges.

Withdrawal Requirements

All matriculated students, undergraduate and graduate, who wish to withdraw from the College must do so in writing to the Registrar's Office on the prescribed form., The official date of withdrawal is that on which the completed form is received and stamped by the Registrar.

All withdrawals from courses - rather than withdrawal from the College entirely - must be done in writing to the Registrar's Office, following the procedures established for that purpose.

Refund Policy

Refunds for withdrawal from the College or withdrawal from courses will be made based on the following schedule if official notice of withdrawal has been received in writing and certified by the Registrar:

1. Prior to the first day of classes, or within the official add/drop period
   - Full refund of all tuitions and fees paid
2. After the official add/drop period
   - No refund of any tuitions or fees paid (unless registration is cancelled by the College)
3. Room Charge (if applicable)
   - A full refund of room fees, less the $50 deposit (and $100 confirmation deposit, if applicable, will be made if intention to withdraw is received by the Director of Housing in writing at least 30 days prior to the beginning of the semester, **and the College is able to fill the vacancy thus created.**
   - A pro-rata refund of room fees will be made if intention to withdraw is received by the Director of Housing in writing prior to November 1st (Fall semester) or April 1st (Spring semester), **and the College is able to fill the vacancy thus created.**

Refund Policy for the First-Time Attendees/ First Time on Financial Aid

Applicability
This refund policy applies **only** to all full-time and part-time students in attendance at Worcester State College for the first time (in the current semester), enrolled in regularly scheduled classes **and** receiving financial aid.

This policy is mandated by federal regulation.

Withdrawal Requirements
All matriculated students, undergraduate and graduate, who wish to withdraw from the College **must do so in writing** to the Registrar's Office on the prescribed form. The official date of withdrawal is that on which the completed form is received and stamped by the Registrar.

Refund Policy
Refunds for withdrawal from the College or withdrawal from courses will be based on the following schedule if official notice of withdrawal has been received in writing and certified by the Registrar:

1. Prior to the first day of classes, or within the official add/drop period
   - 100% refund of all tuitions and fees, room and board charges, less an administrative fee of $100 and the $50 room deposit (and $100 room confirmation deposit, if applicable):
2. After the first day of classes, but prior to the beginning of the week indicated.
   - during the 1st week, but before the beginning of the 2nd week—90%
   - during the 2nd week, but before the beginning of the 3rd week—80%
   - during the 3rd week, but before the beginning of the 4th week—80%
   - during the 4th week, but before the beginning of the 5th week—70%
   - during the 5th week, but before the beginning of the 6th week—60%
   - during the 6th week, but before the beginning of the 7th week—60%
   - during the 7th week, but before the beginning of the 8th week—50%
   - during the 8th week, but before the beginning of the 9th week—40%
   - during the 9th week, but before the beginning of the 10th week—40%
   - after the beginning of the 10th week, there is no refund

NOTE that federal policy provides that all refunds are to be applied first to any sources of financial aid, in proportion to aid received, before any credit or refund is made to the individual.

Policy on Unpaid Debt
It is the policy of Worcester State College that students or former students having any unpaid obligations for tuition, room, board, or any fees due the College and who have not made acceptable arrangements for settlement of such obligations, will be subject to the withholding of any grades, grade reports, transcripts, diplomas and certificates, and will not be eligible to enroll in any course or program of the College until satisfactory settlement of unpaid debts.

Financial Aid

General Information

All students are encouraged to apply for financial aid to help meet their educational costs. To receive financial assistance from the College, students must be enrolled, or accepted for enrollment, in a degree-granting or federally approved certification program at Worcester State College. Occupational Therapy and Physical Therapy students who have had their degree conferred are not eligible for federal/state funds. Applicants must also meet all eligibility requirements and must be in good academic standing.

Financial aid is awarded to students with demonstrated financial need, i.e., the amount by which the total cost of college attendance (including reasonable costs for room, board, transportation, and other personal expenses) exceeds the expected family contribution.

Complete information on financial aid programs, application procedures, and the award process is available in the Office of Financial Aid. Applicants to the College, current students, and their families should feel free to contact the Office of Financial Aid at (508) 793-8056 during business hours—8:15 a.m. to 5:00 p.m., Monday through Friday.

Application Process

All students applying for financial aid should complete and submit a Free Application for Federal Student Aid (FAFSA) prior to the deadline indicated below. In addition to the FAFSA, transfer students and/or readmits must submit financial aid transcripts from all post-secondary schools previously attended whether or not financial assistance was received. All financial aid awards to transfer and readmitted students will remain tentative until the appropriate financial aid transcripts are received by the Office of Financial Aid.

Late applicants for financial assistance will be given full consideration for maximum funding as long as resources are available. Note that funding from the Federal Pell Grant and Federal Stafford Loan programs is available to all late applicants.

Applicants for financial assistance are not required to submit their spouse's and/or parents' tax forms unless requested by the Office of Financial Aid.

All applicants are expected to apply for any scholarship assistance awarded by the state in which they legally reside. State funds that are lost due to late application or lack of application will not be replaced with institutional scholarship funds.

Renewal of financial aid is not automatic; eligibility must be re-established on an annual basis.

Deadlines

March 15	— all first year undergraduate and graduate applicants
March 20	— all returning undergraduate and graduate applicants
November 1	— all first year applicants, transfers, and readmits
March l5	— deadline for the submission of Summer I and Summer II financial assistance requests.

Programs and Resources

Worcester State College has numerous financial aid programs available to assist students in meeting education-related costs. Funding for these programs comes from federal, state, institutional and private sources. Types of programs include grants, scholarships, waivers, loans and employment.

The Federal Pell Grant is a federal program that is based on family income and assets. The grant is available to any undergraduate student enrolled in a degree or certificate program who does not already have a bachelors degree and who submits a valid Student Aid Report to the Office of Financial Aid. Pell grants range up to $2300.00 per academic year.

The Massachusetts State Scholarship Program (MSS) is administered and awards are made by the Scholarship Office of the Massachusetts Higher Education Coordinating Council. Scholarship eligibility for full-time undergraduate students is verified by the Office of Financial Aid and adjustments which affect a student's award amount are sent to the Scholarship Office.

The Federal Supplemental Education Opportunity Grant (SEOG) is a federal program administered by the College. Eligibility for grants is limited to undergraduate students who do not already have a bachelor's degree. Priority is given to students with exceptional need and to Pell Grant recipients. SEOG grants range up to $4000.00 per academic year.

Worcester State College Tuition Waiver—Need Based: Authority to waive state supported tuition is granted to the College by the Massachusetts Higher Education Coordinating Council. Full or partial tuition waivers are available to needy, undergraduate students who are legal Massachusetts residents and who are enrolled at least half-time. Waivers may not exceed a semester's tuition charge and other waivers and/or tuition remissions for which a student is eligible will be deducted from the tuition charged before the need-based tuition waiver amount is determined.

Categorical Tuition Waivers: The following groups of students may be considered for tuition waivers on a space available basis:

- Veteran - including World War I and II, Korean, Vietnam, Lebanese Peace Keeping Force, Grenada Rescue Mission, Panama Intervention Force, or Persian Gulf Troops
- Native American - as certified by the Bureau of Indian Affairs
- Senior Citizen - persons over the age of 60
- Armed Forces - a member stationed and residing in Massachusetts

Worcester State College Grant The College awards this institutional grant to students enrolled in a degree or certificate program, who are undergraduates pursuing a first bachelor's degree and demonstrate financial need.

Fire/Police/Correction Scholarship: Provides full tuition to any student whose parent's death occurred in the line of duty as a police, fire, or correction officer.

War/MIA Orphans Scholarship: Provides up to $750 to any student whose parent's death was war related.

Commonwealth Scholars Grant: Provides $1000 (nonrenewable) to selected high school seniors who will attend a college or university in Massachusetts. Contact the high school guidance office for application information.

Massachusetts No Interest Loan: Zero interest loan program with no repayment during the in-school period. A limited amount of funds is made available to schools by the state. Loans range up to $4,000.00 to Massachusetts residents.

State Employees' Tuition Remission: State employees and their dependents who elect to take courses at Worcester State College may have some or all of their tuition waived. Documentation of eligibility should be submitted to the Bursar's Office. Eligible persons should contact the Personnel Office at their place of employment for further details.

Massachusetts National Guard Education Scholarships: Members of the Massachusetts Army or Air National Guard Office Recruitment Program are eligible for 100% tuition remission. Eligibility must be renewed after each 30 credits attempted. Contact the Massachusetts National Guard or the College's Office of Veterans' Affairs for further information.

Police and Fire Department Education Scholarships: Tuition exemption scholarships are available to regular members of the police or fire department of a city or town of the Commonwealth of Massachusetts when proper certificates and credentials are submitted to the Bursar's Office.

Army/Navy/Air Force ROTC Scholarship Programs: The ROTC Scholarship is designed to offer financial assistance to outstanding students in the four-year programs. Normally the award is made prior to the student's first year of college; however, students may enter the program in their freshman year. Recipients are required to serve on active duty in the branch of the Service they have elected for a period of four years, and then in the active reserve. Contact the ROTC Office at the College of the Holy Cross or Worcester Polytechnic Institute for further information.

Massachusetts Rehabilitation Benefits Program: Certain benefits are available for the handicapped person. Contact the Massachusetts Rehabilitation Commission for further information.

Veterans' Benefits: The Veterans' Administration has approved Worcester State College for the purpose of providing Veterans' Educational Benefits to veterans pursuing undergraduate and graduate study. Massachusetts veterans entitled to educational benefits must provide the Registrar's Office with a copy of their Form DD-214.

GI Bill Benefits: Persons enlisting, reenlisting, or extending an enlistment in the Selective Reserves for a period of not less than six years during the period of July 1, 1985 to June 30, 1988 may be entitled to educational benefits. Inquiries concerning veterans' benefits should be addressed to the Registrar's Office.

The Federal Perkins Loan: is a federal program administered by the College. It offers long term, low interest loans to undergraduate and graduate students. The maximum yearly Perkins Loan for undergraduates is $3000.00. The yearly graduate student limit is $5000.00.

Federal Stafford Loan: is a federally subsidized program whereby banks and other lending institutions make long term, low interest loans to undergraduate and graduate students enrolled at least half-time. Students must have completed a financial aid file before their Stafford loan application will be processed. Stafford Loans range from $2625.00 through $5500.00 depending on year of study. Graduate limits are $l0,000.00 per year.

Federal Unsubsidized Stafford Loan Program: is a federal loan program that is not subsidized (no interest paid) by the federal government. Loans range $2,625.00 to $5,500.00 depending on your year of study. Graduate student limits range up to $l0,000.00 per year.

Federal Parent Loan for Undergraduate Students (PLUS): Parents of eligible dependent students can obtain PLUS loans through banks or other lending institutions regardless of parental income, subject to review of credit worthiness by the lender. Students must be enrolled at least half-time. Parents are eligible to borrow total cost of education (tuition, fees, room and board, books, etc.) less other awarded financial assistance.

Federal College Work Study Program (CWSP) provides federally subsidized employment opportunities on campus for enrolled students. Students are encouraged to participate in employment that complements and reinforces their educational goals. Full-time students may not work more than 20 hours per week during the academic year. [Beginning with the 1994-95 academic year, some funding will be available for community service programs and employment opportunities off-campus.]

Some departments on campus offer part-time jobs to students in addition to CWSP. Contact the Office of Financial Aid or the department(s) for information on possible openings and application procedures. Students are encouraged to see if they qualify for CWSP funding before applying for these jobs.

Worcester State College Academic Scholarships

The Worcester State College Scholarship Program grants awards to full-time undergraduate students who demonstrate scholarly excellence, as evidenced by a minimum GPA of 3.0 or a minimum high school average of B (unless otherwise indicated for a specific award). Both entering and currently enrolled students may apply. Academic scholarships at Worcester State College may be awarded for a full academic year or for one semester and typically provide full or partial tuition. Because financial need is a consideration for some, but not all the scholarships, academic scholarship applicants are encouraged to complete a financial aid application with the College. The scholarship award will be applied directly to the student's tuition bill through the Bursar's Office.

Application Process: Applicants for academic scholarships must submit Worcester State College Academic Scholarship Applications to the Office of Financial Aid by the April 20 deadline.

Academic Scholarships: Some of the scholarships currently available at the College are described in the following pages. Specific awards and stipend amounts are subject to availability of funds and may change without notice. Priority for full and partial tuition remission is given to entering freshmen who will enroll full-time in undergraduate day programs and whose combined SAT score is 1000 or higher. Currently enrolled students and candidates for renewal must attain a minimum GPA of 3.0 for 12 hours of coursework completed each semester.

Worcester State College Presidential Scholarships (full tuition): Awarded to a new or current full-time student who shows academic excellence, as evidenced by a minimum GPA of 3.3 or its equivalent.

Worcester State College Designated Scholarship (full tuition): Awarded to a freshman student from Worcester who attained a high school average of at least B+.

Worcester State College Scholarships (full tuition):
Achievement and Community Scholarship
Awarded for academic achievement and community involvement, as evidenced by unpaid service in either the College community or the broader civic community. Service in student government organizations, clubs, civic groups, community volunteer work, etc. must be documented and submitted with the scholarship application. At least one of the three recommendations must be from an individual who supervised the extracurricular activity. Part-time students may be considered for these awards.

Bilingual Scholarship
Awarded to a full-time minority student who is outstanding in a language other than her/his native language, shows financial need and has a minimum GPA of 3.3 or its equivalent.

Alumni Scholarship ($500 per semester): Awarded to a new or current student who is the son or daughter of a Worcester State College graduate.

Esther Averill Scholarship (partial tuition): Awarded to a new or current female full-time student who is a sophomore or junior with a major of Education, with an interest in writing and/or dramatics.

Nancy Burncoat Scholarship (partial tuition): Awarded to a new or current full-time freshman whose major is English.

Walter Busam Scholarship (partial tuition): Awarded to a new or current full-time sophomore, junior or senior whose major is English.

Blanche Marcus Carnam Memorial Scholarship (partial tuition, Fall only): Awarded to a female student majoring in Mathematics or Computer Science who has a strong career interest.

Paul J. Carnazza Scholarship (partial tuition): Awarded to a new or current full-time student who shows superior scholarship and financial need combined with a strong career interest.

John Coughlin Memorial Scholarship ($250 per semester): Awarded to a new or current student who demonstrates superior scholarship combined with strong career interest and financial need.

Elder Advocates' Intergenerational Scholarship (partial tuition, Fall semester only): Awarded to a junior or senior who demonstrates interest in an intergenerational approach to meeting the challenges of our aging society. A qualifying essay (maximum 250 words) titled, "The Challenges of the 90s: Elders and Younger Students Working Together" is required.

Carolyn and Eugene Faraher Memorial Scholarship ($200.00 annually): awarded to a junior or senior majoring in Health or human services with a minimum 3.0 GPA. The student should have a deep understanding of the importance of family and have demonstrated a commitment to community involvement.

Hiatt Scholarships ($500 per semester): Awarded to three juniors or seniors in the nursing program who have financial need and have demonstrated knowledge and competence and sensitivity to health needs of people.

Hiatt Tuition Scholarships (full tuition): Awarded to five graduates of Worcester public or private schools who are accepted into the four year baccalaureate nursing program. Recipients may apply for continuation in subsequent years of study; renewal is contingent upon maintenance of acceptable academic standing.

Francis Jones Scholarship ($200 per year): Awarded to an undergraduate student with a 3.5 GPA or higher on the basis of need.

Aileen D. Kelly Memorial Scholarship (partial tuition): Awarded to a junior or senior registered nurse enrolled in the nursing program who has a strong career interest; documentation of status as a registered nurse must be submitted with the scholarship application.

Luke Education Fund ($500 per year): Awarded to a freshman or sophomore majoring in Early Childhood or Elementary Education with a GPA of at least 3.0.

Ada Cheever Perry Memorial Scholarships ($250 per semester): Awarded to four juniors or seniors who are US citizens, have a minimum GPA of 2.7, show financial need, and are majoring in Chemistry, Computer Science, Nursing or Management, or minoring in Secondary Education.

Quota Club of Worcester Scholarships ($400 per semester): Awarded to one female senior majoring in Communication Disorders who has a minimum GPA of 3.25, shows financial need and has demonstrated ability to work with the speech- handicapped and/or hard of hearing.

Mary W. Smith Scholarship (partial tuition): Awarded to a new or current student who shows financial need.

Ruth Sniederman Memorial Scholarship ($375 per semester): Awarded to a student majoring in Communications (Media) who demonstrates a strong career interest.

Eugene A. Sullivan Scholarship (full tuition, Fall only): Awarded to a new or current student whose major is Education. Preference given to, but not limited to, the son or daughter of a Worcester State College graduate.

Chester S. Warner Scholarship (full tuition): Awarded to a new or current student whose major is Education.

Graduate Students

Generally funds for graduate students are limited to the Federal Stafford and Perkins Loan Program in addition to the Federal Work Study Program. Applicants who are taking courses that are pre-requisites to graduate degree may be eligible for Stafford Loan funds for up to one year. Applicants in this category should contact the Financial Aid Office.

Second Degree/Certificate Programs:

Students pursuing a second degree are not eligible for financial aid unless they are pursuing a degree in Nursing or teacher certification. Due to the fact that federal regulations often change, second degree or nursing students should contact the Financial Aid Office for eligibility and program requirements.

Exit Interviews

Students who have received financial aid at any time during their academic careers are required to attend an exit interview prior to any leave of absence, upon withdrawal, and/or graduation from the College.

A financial aid hold will be applied to all records of those students who do not comply with this federal **and** College requirement.

Academic Calendar, Fall, 1994

September

1	Opening of Academic Year New Student Orientation Faculty/Staff Conferences
6	All Classes Begin: Day/Evening/Graduate
19	Last Day To Add/Drop Courses

October

3	Last Day To Declare/Change Major, Minor
8 -10	Columbus Weekend: ***NO CLASSES***
21	Failure Warnings Due In Registrar's Office
26	Last Day To Make Up "Incomplete" Grades From Spring/Summer, 1994
28	Failure Warnings Issued To Students

November

2-14	Academic Advising And Registration Into Major/Minor/Certification Courses
4	Last Day To Withdraw From Courses, School
7-14	Student Evaluation Of Faculty
11	Veteran's Day: ***NO CLASSES***
15	Registration Into Distribution And Elective Courses: ***ALL CLASSES WILL MEET AS SCHEDULED***
20	Last Day To Elect Pass/Fail Option
24-27	Thanksgiving Recess

December

14	Day Classes End
15	Preparation Day For Final Exams ***EVENING CLASSES WILL MEET***
16-23	Examinations
18	Evening/Graduate Classes End
24,27,28	Make-Up Days For Examination Days Postponed Due To Inclement Weather
30	Semester Ends

Examination Schedule

Class Day and Time		Examination Day and Time		
MWF	8:30	Friday	December 16	8:30 -11:30
MWF	9:30	Monday	December 19	8:30 -11:30
MWF	10:30	Wednesday	December 21	8:30 -11:30
MWF	11:30	Thursday	December 22	8:30 -11:30
MWF	12:30	Friday	December 16	12:30 - 3:30
MWF	1:30	Monday	December 19	12:30 - 3:30
MWF	2:30	Wednesday	December 21	12:30 - 3:30
TR	8:30	Thursday	December 15	8:30 -11:30
TR	10:00	Tuesday	December 20	8:30 -11:30
TR	11:30	Thursday	December 15	12:30 - 3:30
TR	1:00	Tuesday	December 20	12:30 - 3:30

Friday, December 23: Make-up for first postponed examination day.
Tuesday, December 27: Make-up for second postponed examination day.
Wednesday, December 28: Make-up for third postponed examination day.

Academic Calendar, Spring, 1995

January

17	All Classes Begin: 8:30 a.m.
30	Last Day To Add/Drop Courses

February

6	Last Day to Declare/Change Major, Minor
18-20	Washington's Birthday Weekend: ***NO CLASSES***
24	Last Day To Make Up "Incomplete" Grades From Fall, 1994

March

8	Failure Warnings Due In Registrar's Office
13-18	Spring Recess
15	Failure Warnings Issued To Students
28	Last Day to Withdraw From Courses
28	Academic Honors Convocation

April

3-10	Student Evaluation Of Faculty
3-12	Academic Advising And Registration In Major, Minor, Certification Courses
11	Last Day To Elect Pass/Fail Option
13	Registration Into Distribution And Elective Courses: ***ALL CLASSES WILL MEET AS SCHEDULED***
17	Patriot's Day: ***NO CLASSES***

May

8	All Classes End
9	Preparation Day For Final Exams
10-17	Examinations
20	Commencement

Examination Schedule

Class Day and Time		Examination Day and Time		
MWF	8:30	Wednesday	May 10	8:30 -11:30
MWF	9:30	Friday	May 12	8:30 -11:30
MWF	10:30	Monday	May 15	8:30 -11:30
MWF	11:30	Wednesday	May 17	8:30 -11:30
MWF	12:30	Wednesday	May 10	12:30 - 3:30
MWF	1:30	Friday	May 12	12:30 - 3:30
MWF	2:30	Monday	May 15	12:30 - 3:30
TR	8:30	Thursday	May 11	8:30 -11:30
TR	10:00	Tuesday	May 16	8:30 -11:30
TR	11:30	Thursday	May 11	12:30 - 3:30
TR	1:00	Tuesday	May 16	12:30 - 3:30

Academic Departments, Faculty, Programs and Courses

Biology

Biology

Edwin A. Boger, Sr., Professor (1968), Department Chair
A.B., Valparaiso University; M.S., University of Connecticut; Ph.D., Clark University

Peter M. Bradley, Assistant Professor (1993)
B.Sc., University of Aberdeen; Ph.D., Worcester Polytechnic Institute

Ellen F. Fynan, Assistant Professor (1993)
B.S., University of Maine; Ph.D., Thomas Jefferson University

Terry E. Graham, Professor (1970)
A.B., Suffolk University; M.S., University of New Hampshire;
Ph.D., University of Rhode Island

Surindar M. Paracer, Professor (1970)
B.S., Punjab University; M.S., South Dakota University; Ph.D., University of California

Bruce D. Russell, Associate Professor (1965)
B.S., Illinois College; M.S., University of Arkansas

Maureen Shamgochian, Assistant Professor (1993)
B.S., Worcester State College; Ph.D., University of Massachusetts

Antonieto S. Tan, Assistant Professor (1993)
B.S., University of San Carlos; B.S., M.S., University of San Carlos

The faculty in the life sciences offer courses and programs to provide for the general education of students and preparation of the major and minor in Biology. A program leading to the Master of Science degree is also available. The biology courses may be supplemented with courses in nuclear medicine technology, administrative studies, health education, sports medicine and public health biology. Beta Beta Beta, the national honor society in biology, is available to distinguished majors.

Requirements for a Major in Biology:
Ancillary requirements: 32-34 credits

CH 120 & CH 121	General Chemistry I and II
CH 201 & CH 202	Organic Chemistry I and II
CH 203 & CH 204	Organic Chemistry Laboratory I and II
MA 110	College Algebra and MA 150 Statistics I **or**
MA 200 & MA 201	Calculus I and II
PY 221 & PY 222	General Physics I and II **or**
PY 241 & PY 242	Physics I and Physics II

Required Biology courses: 37-38 credits

BI 151	General Botany
BI 152	General Zoology
BI 201	Introduction to Cell Biology
BI 202	Principles of Ecology
BI 203	Genetics
BI 204	Microbiology
BI 404	Biology Seminar

A minimum of three upper division laboratory courses (BI 300- or BI 400-level) selected with the advice and consent of a faculty advisor. Four credits in independent study and/or internship may be substituted for one laboratory course at the discretion of the discipline faculty. A grade point average of 2.0 must be maintained in biology courses and in the ancillary science and mathematics courses. Students considering graduate and professional work should take, as a recommended minimum, courses in general physics, calculus, introduction to computer science and statistics.

Requirements for a Minor in Biology:

BI 151	General Botany
BI 152	General Zoology
BI 201	Introduction to Cell Biology
BI 202	Principles of Ecology
BI 203	Genetics
BI 204	Microbiology

A minimum of 6 credits in the ancillary sciences

Requirements for a Major in Biology, Concentration in Nuclear Medicine Technology: 48 credits

The department offers, in conjunction with the University of Massachusetts Medical School, a concentration in Nuclear Medicine Technology (NMT), administered by a program advisory committee. Nuclear medicine is a study of techniques developed in hospitals, particularly in radiology, pathology and internal medicine departments. These techniques are used for both diagnostic and therapeutic purposes. Students interested in being considered candidates for admission to the program should contact either the program coordinator or the nominating committee as early in their college career as possible. The program is limited to a relatively small number of students.

Prerequisites for the program include successful completion of:

BI 161 & BI 162	Human Anatomy and Physiology I and II
CH 110 & CH 111	Introduction to General, Organic & Biochemistry I and II **or**
CH 120 & CH 121	General Chemistry I and II
MA 200 & MA 201	Calculus I and II
PY 221 & PY 222	General Physics I and II **or**
PY 241, PY 242, & PY 243	Physics I, II, and III

Candidates must visit the Medical School Nuclear Medicine Department and file intent to enroll forms with the Worcester State College Nuclear Medicine Technology coordinator prior to being considered a candidate for the program.

Technical specialty courses of the NMT Program are:

Introduction and Hospital Orientation (no credit)

PY 310	Modern Physics
BI 252	Radiation Biology
BI/PY 451 & BI/PY 452	Nuclear Instrumentation I and II
BI 461, BI 462, BI 463, & BI 464	NMT Clinical Practicum I, II, III and IV
BI/CH 453	Radiopharmaceuticals
BI/CH 465 & BI/CH 466	Clinical Nuclear Medicine Technology I and II

Students majoring in Chemistry, Natural Science or Physics may also pursue the Concentration in Nuclear Medicine Technology.

Graduate Program

Master of Science in Biology

The graduate program in biology is designed to broaden the matriculant's understanding of the biological sciences and to prepare for professional careers and doctoral study.

Admission Requirements: In order to be admitted to the program, candidates must meet the general admission requirements for the degree of Master of Science. The program is open to graduates of accredited institutions of higher education who have been awarded a baccalaureate degree and who possess a substantial background at the undergraduate level comparable to that required of all Biology majors at Worcester State College. Applicants should have achieved a minimum grade point average of 2.75 in all undergraduate work and an average of 3.0 in all course work in their major at the junior and senior level.

Requirements of the Program: All work for the degree must be completed within a period of six years from the date of admission to the program and all course credits must be earned in courses which are exclusively graduate-level. Of the 33 credits required for the degree, at least 21 credits must be earned as a matriculated graduate student at Worcester State College. Only credits for which students have earned a B- or higher within a two-year period immediately prior to the date of their acceptance into the program are transferable from an accredited institution, including credits earned at Worcester State College. A maximum of 12 such transfer credits may be accepted. Matriculated students who do not maintain a grade point average of 2.75 or higher will be terminated from the program.

Required of all students:

BI 990	Seminar in Biology
BI 995	Research in Biology

Approved biology electives: minimum of 24 credits

In addition, reading competency in a language other than the candidate's native tongue or computer science proficiency or statistics competency is required. A minimum score of 500 on the Graduate Study Foreign Language Test of the Educational Testing Service is required to establish language competency. Students electing to satisfy computer science or statistics proficiency must meet the requirements established by the Physical and Earth Sciences Department in conjunction with the Department of Mathematics and Computer Science. Proficiency is normally determined by the candidate's completion of an approved course with a minimum grade of B.

Research: To fulfill requirements for the course BI 995, Research in Biology, the candidate must complete an acceptable thesis or paper submitted in publishable format based upon original research in the field of Biology. The candidate must adhere to the form specified for the thesis by the Biology faculty. The thesis will be defended in an oral examination conducted by the Biology faculty. During the semester in which the candidate anticipates receiving the degree, the following timetable for thesis completion and defense shall apply:

- A minimum of five weeks prior to graduation, the thesis must be presented to the graduate thesis advisor.
- A minimum of three to four weeks prior to graduation the defense of the thesis must be held.
- A minimum of one week prior to commencement, the defended and approved copies of the thesis must be submitted to the Office of Graduate Studies for approval.

If the candidate elects to submit a research paper in publishable format instead of a formal thesis, the following timetable shall apply:

- A minimum of four weeks prior to graduation, the paper must be presented to the candidate's graduate research advisor.

- A minimum of two weeks prior to commencement, the final copy of the paper, following approval by the candidate's graduate research advisor, will be evaluated by the Biology faculty.

Comprehensive Examination: To receive the Master of Science in Biology, the candidate is required to pass an oral and/or written comprehensive examination in both the subject matter of Biology as well as the candidate's area of specialization. The nature of the comprehensive, whether it be written and/or oral, will be determined by the candidate's comprehensive examination committee. If a candidate fails the examination, he/she will be granted one further chance to satisfactorily fulfill this requirement. At least 24 approved graduate credits must be earned before the candidate can submit a request for the scheduling of a comprehensive examination.

Biology Courses (Undergraduate)

BI 101 General Biology

Unifying principles in biology; diversity and evolution of plant and animal life at cellular and organismic levels. Three lecture hours and a two hour laboratory per week.
Category 1. 4 credits.

BI 111 Social Biology

This course considers the interface between current biological technologies and the social, cultural, legal, and moral postures of modern man.
Category 1. 3 credits.

BI 112 Diseases and Mankind

Epidemiological approach to diseases of ancient and modern man; the impact on history, religion, science, art and philosophy.
Category 1. 3 credits.

BI 114 Plants and Human Affairs

Man's dependence upon plants and their influence on civilization and its art, religions, literature, folklore, medicine, and human behavior.
Category 2. 3 credits.

BI 120 Darwinian Revolution

An interdisciplinary perspective on the philosophical, religious, and social impacts of Darwin's theory of evolution by the process of natural selection.
Category 2. 3 credits.

BI 151 General Botany

The plant kingdom; taxonomy, natural history, anatomy, and evolutionary relationships; identification,classification, and dissection from macro- and microscopic viewpoints; three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 152 General Zoology

Concepts in animal biology and animal diversity with phylogenetic relationships, comparative structure-function analysis of selected animals. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 161 Human Anatomy and Physiology I

Considers human pre-tissue biology, tissues, integumentary, nervous, special senses, endocrine, skeletal, muscular systems. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 162 Human Anatomy and Physiology II

Considers digestive, respiratory, cardiovascular, excretory systems; water and electrolyte balance, reproduction and embryogeny. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 171 Basic Kinesiology

Structure and function of human skeletal muscles in relation to motion and general body mechanics under normal and stress conditions.
Category 3. 3 credits.

BI 172 Exercise Physiology

The functions of the systems of the human body during exercise and factors that may modify these functions.
Category 3. 3 credits.

BI 201 Introduction to Cell Biology

Prerequisites: BI 151, BI 152

The ultra structure, cytochemistry, and functions of cell organelles as related to cell bioenergetic and nuclear phenomena. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 202 Principles of Ecology

Prerequisites: BI 151, BI 152

Basic ecological theory relating to organism-environment interactions; population dynamics and ecosystems. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 203 Genetics

Prerequisites: BI 151, BI 152

Introductory genetics with examples of human inheritance and recent developments in genetic engineering. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 204 Microbiology

Prerequisites: Introductory chemistry and biology courses

The cytology, metabolism, and genetics of bacteria. Immune responses and control of microorganisms are stressed. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

BI 252 Radiation Biology

Prerequisites: BI 151, and BI 152 or BI 162

Basic theories of interaction of ionizing radiations with living and non-living matter; industrial and clinical applications.
Category 2. 3 credits.

BI 262 Pathophysiology

Prerequisites: BI 161, BI 162

Considers altered biophysiologic responses of selected systems in the human body.
Category 1. 3 credits.

BI 266 Biology of Aging

Prerequisites: BI 151, BI 152

Considers characteristics of the aging process utilizing the newest theories based upon dynamics, function and metabolic regulations, disease and the acceleration of the aging process.
Category 3. 3 credits.

BI 301 Invertebrate Zoology

Prerequisites: BI 151, BI 152

Considers anatomy, taxonomy (including selected articles of the International Code of Zoological Nomenclature), natural history, and evolutionary relationships of selected invertebrate phyla. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 302 Entomology

Prerequisite: BI 152

Considers insects and their allies, chemical and biological control, and special references to agricultural pests and medical entomology. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 303 Parasitology

Prerequisite: BI 152

Basic concepts in symbiology, life cycles, epidemiology, disease development, control and prevention of selected human parasites. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 304 Comparative Vertebrate Anatomy

Prerequisites: BI 151, BI 152

Considers prochordate and chordate taxonomy and phylogeny; systematic morphological comparison of representative chordates to establish homology, analogy, and evolution. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 305 Embryology

Prerequisites: BI 151, BI 152, and two additional biology courses

Morphogenesis of selected chordate embryos; principles of differentiation and evolution as interpreted in animal taxa. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 313 Histology

Prerequisites: BI 151, BI 152

The structure and function of animal tissues. Each student is required to prepare tissues using histologica methods. Three lectures hours and three laboratory hours per week.
Category 2. 4 credits.

BI/NS 315 Neuroanatomy and Physiology

Prerequisites: BI 161, BI 162

Structural and functional organization of the central and peripheral nervous system. Principles of normal and abnormal transmission, integration, and storage of information in neuronal pathways. Three lecture hours and two laboratory hours per week
Category 1. 4 credits.

BI 320 Gross Anatomy

Prerequisites: BI I6I, BI I62, BI I7I, NS/BI 315

A study of the structure and functon of the human body with particular emphasis on the skeletal, muscular and vascular components.
Category I. 4 credits.

BI 321 Comparative Physiology

Prerequisites: BI 151, BI 152

A comparison of select physiological functions of different animal taxa with mammals used as a reference. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 324 Endocrinology

Prerequisites: BI 151, BI 152, BI 161, CH 120 or BI 371

The role of endocrine glands in the normal integration of animals; mechanisms of hormone action, function, and interrelationships. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 331 Marine Biology

Prerequisites: BI 151, BI 152, BI 301

Considers the marine environment, its flora and fauna, distribution and production of plankton-nekton-benthos; zoogeography, bioeconomic factors and potential. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 333 Vertebrate Natural History Ectotherms

Prerequisites: BI 151, BI 152, BI 202

Life histories, adaptations, distribution, systematics, and economic importance of ectothermic (cold-blooded) vertebrates (fish, amphibians, and reptiles) in northeastern U.S. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 334 Wildlife Investigational Techniques

Prerequisites: BI 151, BI 152, BI 202

Considers procedures for collection and analysis of field and laboratory data on vertebrate game populations useful to wildlife biologists. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 341 Mycology

Prerequisite: BI 152

The morphology, cytology, and evolution and classification of the fungi. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 342 Plant Physiology

Prerequisites: BI 151, BI 152

Fundamentals of plant processes, nutrition, metabolism, growth, development and responses. Three lecture hours and three laboratory hours per week.
Category 3. 4 credits.

BI 371 Molecular Biology

Prerequisites: BI 201, BI 204; or CH/BI 410

Emphasis on the molecular biology of the gene. Topics include structure, function, replication, transcription, recombination, mutability, repair and regulation of DNA. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 372 Immunology

Introduction to cellular defense mechanisms in health and disease; antigen-antibody reactions, human immune responses. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI 401 Selected Topics in Biological Sciences

Prerequisites: Consent of department and instructor

Each topic is a lecture and/or laboratory course in a selected area of the biological sciences presented by a departmental instructor and/or guest lecturers when appropriate; topic announced in advance.
Category 3. 1-4 credits.

BI 402 Independent Studies In Biology

Prerequisites: Consent of department and instructor

Advanced semi-independent study (by qualified upper-level Biology majors) of an approved biological problem. Faculty supervision required.
Category 1. 1-6 credits.

BI 403 Biology Internship

Prerequisite: Consent of department

Intended for qualified, upper-level biology majors.
Category 3. 1-6 credits.

BI 404 Biology Seminar

Prerequisite: Consent of department

Preparation and presentation of biological topics, chosen with the advice and consent of a faculty advisor.
Category 1. 2 credits.

BI/CH 410 Biochemistry I

Prerequisite: CH 201, CH 202

The chemistry of proteins, nucleic acids, carbohydrates, and lipids; enzymes, biological oxidations; and correlations in intermediary metabolism. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI/CH 411 Biochemistry II

Prerequisite: BI/CH 410

The generation and storage of metabolic energy; biosynthesis of macromolecular precursors, DNA, RNA, and protein; and biochemical regulation. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

BI/PY 451 Nuclear Instrumentation I

Prerequisite: Consent of NMT coordinator

Structure, functions, and interactions of particulate and nonparticulate radiations with matter; detection, calibration, dosage, and statistical methods.
Category 1. 4 credits.

BI/PY 452 Nuclear Instrumentation II

Prerequisite: Consent of NMT coordinator

Designed to further the skills of operating, calibrating, and performing routine maintenance on scanners, gamma cameras, well-counters, and liquid scintillation counters.
Category 1. 4 credits.

BI/CH 453 Radiopharmaceuticals

Prerequisite: Consent of NMT coordinator

Fundamental concepts of radiopharmaceutical production and use; includes basic radiochemistry.
Category 1. 4 credits.

BI 461/BI 462 NMT Clinical Practicum I and II

Prerequisite: Consent of NMT coordinator

Students will spend several days a week in a hospital observing the ongoing activities and procedures of a nuclear medicine facility.
Category 1. 5 credits each.

BI 463 NMT Clinical Practicum II

Prerequisite: Consent of NMT coordinator

Guided and supervised by clinical instructors, students begin to acquire manual skills essential to nuclear medicine technology; and in performing all routine nuclear medicine examination and laboratory procedures.
Category 1. 6 credits.

BI 464 NMT Clinical Practicum III

Prerequisite: Consent of NMT coordinator

Upon completion of this practicum, students should be skilled in performing both routine and non-routine nuclear medicine examinations and laboratory procedures.
Category 1. 4 credits.

BI/CH 465 Clinical Nuclear Medicine Technology I

Prerequisite: Consent of NMT coordinator

Considers why a specific test is indicated; which radiopharmaceutical is preferred; and how the basic image appearance, and/or numerical data may be altered by pathological states.
Category 1. 4 credits.

BI/CH 466 Clinical Nuclear Medicine Technology II

Prerequisite: Consent of NMT coordinator

Case presentations using formulas, charts, tables, and calculations to arrive at examination parameters such as dose, number of counts, speed of instrument, etc.
Category 1. 4 credits.

Biology Courses (Graduate)

BI 905 Historical Perspectives in Biology

The nature, processes, and research approaches of the major biological discoveries and emerging new paradigms from the 17th century to present.
3 credits.

BI 910 Public Health Parasitology

Biology, epidemiology, disease processes, control and prevention of human parasites. Concentrates on selected protozoan, helminth, and arthropod organisms. Includes three hour laboratory.
4 credits.

BI 915 Topics in Advanced Botany

Explores and reviews specialized topics in the life of plants. Includes three hour laboratory.
4 credits.

BI 920 Population Biology

Analyzes population density, growth, regulation, and energy relationships. Population interactions, organization, and evolution are stressed.
3 credits.

BI 925 Cell Physiology

Examines the cellular mechanisms involved in maintaining homeostasis in response to changes in the cellular environment. Includes three hour laboratory.
4 credits.

BI 930 Biological Chemistry

Concerns the physical, chemical, and biological properties and metabolism of carbohydrates, proteins, lipids, DNA, and RNA.
3 credits.

BI 935 Biochemical Techniques

Prerequisite: BI 930

Topics include the isolation and characterization of biochemical compounds with emphasis on nucleic acids and proteins. One hour of lecture and three hours of laboratory.
3 credits.

BI 940 Reproductive Physiology

Concerns the influence of sex hormones on the reproductive system, beginning with embryogenesis and early maturation and extending into the areas of fertilization, pregnancy, gestation, parturition, and lactation. Includes three hour laboratory.
4 credits.

BI 945 Neuroendocrinology

Emphasizes the hypothalamo-hypophysial system in mammals together with its influence on the central nervous system.
3 credits.

BI 950 Physiological Ecology

Considers the physiological adjustments which animals make in response to environmental factors; emphasizes the physiological basis of animal evolution and distribution.
3 credits.

BI 955 Herpetology

Concerns the structural and functional characteristics of amphibians and reptiles, their origin and evolution, their ecological relationships, and their distribution and natural history. Includes three hour laboratory.
4 credits.

BI 960 Biology of Symbiosis

Nutritional, metabolic, and evolutionary mechanisms of partnerships in nature with emphasis on the universality of symbiosis. Includes three hour laboratory.
4 credits.

BI 980 Selected Topics in Advanced Biology

Each topic is a timely and exciting new lecture and/or laboratory course. Topics will be announced in advance and will service needs in growth areas; e.g., biotechnology.
3 - 4 credits.

BI 985 Graduate Internship in Biology

Prerequisite: Successful completion of a minimum of 12 graduate credits toward the degree and approval of the Biology faculty.

Provides M.S. candidates the chance to gain practical experience at off-campus agencies where technical and analytical skills can be gained.
3 - 4 credits.

BI 990 Seminar in Biology

Study and discussion of current researches, books, and periodicals in the field of biology; includes reports of research in progress. Required of all graduate degree candidates.
3 credits.

BI 995 Research in Biology

Original research in biology under faculty supervision. Requires an acceptable thesis or paper in publishable format. Required of all degree candidates.
3-6 credits.

Biotechnology

Worcester State College offers a program in biotechnology to meet the need for skilled assistants and associates in the experimental laboratory and in manufacturing facilities of the biotechnology industry. Biotechnology graduates will be qualified for positions in biotechnology companies that include: cell culture and fermentation manufacturing technician, cell culture and manufacturing research associate, purification manufacturing technician, purification manufacturing associate, aseptic fill manufacturing technician, aseptic fill manufacturing research associate, quality control chemistry analyst, quality control microbiologist and quality assurance documentation technical writer. In addition, opportunities also exist for students to pursue further (graduate) education.

Eligibility

Candidates for the program will apply to the selection committee. Admission to the program will depend upon successful completion of the Freshman year of the equivalent. Each student will be strongly advised to participate in an internship in a biotechnology company.

Worcester State College students who have satisfactorily completed the courses for the first year of the program, are eligible to apply to the Biotechnology program. Application forms are available from the Biology Department office. Enrollment is limited.

Faculty Advisors

Professor William A. Belanger, Natural Science and Physics

Dr. Peter M. Bradley, Biology

Dr. Alan Cooper, Chemistry

Professor Bruce Russell, Biology

Freshman Year

Semester 1			***Semester 2***		
EN 101	English Composition	*3	EN 102	English Composition II	3
CH 120	General Chemistry I	4	CH 121	General Chemistry II	4
MA 190	Precalculus*	4	MA 150	Statistics	3
BI 101	General Biology	4	CS 120	Microcomputer Applications	3
				History Elective	3
	Total 15 Credits			Total 16 Credits	

Sophomore Year

Semester I			***Semester 2***		
CH 201	Organic Chemistry	3	CH 210	Chemical Analysis	4
CH 203	Organic Chemistry Lab	2	BI 204	Microbiology	4
PY 221	General Physics I	4	PH 222	General Physics II	4
MA 220	Calculus I	4	MA 201	Calculus II	4
				Distribution Elective	3
	Total 17 Credits			Total 19 Credits	

Junior Year

Semester 1			***Semester 2***		
EN 252	Technical Writing	3		Distribution Elective	3
	Distribution Elective`	3	NS 375	Tissue Culture	4
NS 376	Biotechnology	4		Major Elective	4
	Major Elective	4		Distribution Elective	3
	Distribution Elective	3		Distribution Elective	3
	Total 17 Credits			Total 17 Credits	

Senior Year

Semester 1			***Semester 2***		
CH 410	Biochemistry I	4		Major Elective	4
NS 450	Internship in Biotechnology (Strongly Advised)	3-6		Distribution Elective	3
				Distribution Elective	3
	Distribution Elective	3		Distribution Elective	3
	Total 13-16 Credits			Total 13 Credits	

Major Electives

BI 203	Genetics	4	CH 202	Organic Chemistry II	3
BI 372	Immunology	4	CH 204	Organic Chemistry II Lab	2
BI 371	Molecular Biology	4	PY 312	Modern Physics	3
BI 373	Radiation Biology	4	CH 411	Biochemistry II	4

Additional Electives are being developed.

**May be waived.*

Business Administration and Economics

Business Administration

Arnold J. Bornfriend, Professor (1975)
A.B., City University of New York; Ph.D., Columbia University

Leonard F. Farrey, Professor (1965)
B.S., Ed.M. Worcester State College; Ed.D., University of Massachusetts

Karen A. Gammell, Instructor (1989)
B.S., Worcester State College; M.B.A., Clark University

Robert J. Hartwig, Professor (1970)
A.B., Providence College; M.A., Ph.D., University of Wisconsin;
M.B.A., Nichols College; C.A.G.S., Bryant College

Renuka Jain, Associate Professor (1985)
M.Sc., Rajastham University; Ph.D., McGill University

Donald L. Joyal, Professor (1977)
B.S., New Hampshire College; M.B.A., Bryant College; M.A., Suffolk University; C.A.G.S., Boston State College; C.A.G.S., University of Massachusetts

Richard S. Juralewicz, Professor (1973)
B.M.E., General Motors Institute of Technology; M.S.,
Ph.D., Rensselaer Polytechnic Institute

Felix E. Masterson, Professor (1968)
A.B., Assumption College; M.A., Clark University; Diploma, Prof. Ed., University of Connecticut; Ph.D., University of Michigan

Gary W. McEachern, Assistant Professor (1975)
B.S., Norwich University; M.B.A., Western New England College

Dennis P. Moore, Associate Professor (1983)
B.S., New Hampshire College; M.B.A., Northeastern University; M.S., Bentley College; CPA, Massachusetts

Maureen C. Stefanini, Professor (1967), Department Chair
B.S., Ed.M., Worcester State College; M.S., Management, Massachusetts Institute of Technology; Ed.D., Boston University

James J. Swanson, Associate Professor (1984)
B.S., Bryant College; M.B.A., University of Rhode Island; M.S., Bryant College; CPA, Rhode Island

The business administration program enables participants to acquire competencies necessary to managing human, financial and technological resources of organizations. The major in Business Administration offers eight concentrations: Management, Accounting/Finance, Human Resource Development, Production/Operations Management, Marketing, Public Administration, Health Administration and Labor Studies-Labor Relations.

Admission Requirements: Application to the department after completion of the following prerequisite courses:

CS 120	Microcomputer Applications in Business I
EC 110	Introduction to Microeconomics
EC 120	Introduction to Macroeconomics
EN 253	Business Communications
MA 150	Statistics I
MA 202	Business Calculus

To be accepted to the major, a student must complete all prerequisite courses with a C (2.0) average.

Requirements for a Major in Business Administration: 48 credits
Common Business Core: 36 credits

Lower Division

BA 100	Introduction to Business
BA 200	Principles of Management and Organizational Behavior
BA 210	Fundamentals of Accounting I
BA 220	Fundamentals of Accounting II
BA 230	Managerial Accounting (or BA 374 Cost Accounting)

Upper Division

BA 305	Organizational Dynamics
BA 312	Operations Management I
BA 316	Financial Management
BA 318	Principles of Marketing
BA 350	Business Information Systems and Applications
BA 480	The Legal Environment of Business (or BA 320 Business Law)
BA 490	Business Strategy and Policy

Other upper division (300-level or above) business administration courses: 12 credits

Requirements for a Major in Business Administration, Concentration in Management: The Common Business Core together with four additional courses chosen with the assistance of the advisor.

Requirements for a Major in Business Administration, Concentration in Accounting/Finance: The Common Business Core together with four additional courses in the field of accounting and finance chosen with the assistance of the advisor.

Requirements for a Major in Business Administration, Concentration in Human Resource Development: The Common Business Core together with four additional courses in the field of human resource development chosen with the assistance of the advisor.

Requirements for a Major in Business Administration, Concentration in Production/Operations Management: The Common Business Core together with four additional courses in the field of production and operations management chosen with the assistance of the advisor.

Requirements for a Major in Business Administration, Concentration in Marketing: The Common Business Core together with four additional courses in the field of marketing chosen with the assistance of the advisor.

Requirements for a Major in Business Administration, Concentration in Public Administration: The Common Business Core together with four additional courses in the field of public administration chosen with the assistance of the advisor.

Requirements for a Major in Business Administration, Concentration in Health Administration: The Common Business Core together with four additional courses in the field of health administration chosen with the assistance of the advisor.

Requirements for a Major in Business Administration, Concentration in Labor Studies-Labor Relations: The Common Business Core together with four additional courses (two Economics, two History) chosen with the assistance of the advisor.

Admission Requirements for a Minor in Business Administration:
Application to the department after completion of the prerequisite courses. For acceptance to the minor, students must complete the six prerequisite courses with a C (2.0) average.

Requirements for a Minor: prerequisite courses and 24 credits as follows

BA 100	Introduction to Business
BA 200	Principles of Management and Organizational Behavior
BA 210	Fundamentals of Accounting I
BA 220	Fundamentals of Accounting II
BA 305	Organizational Dynamics (or BA 312 Operations Management I)
BA 316	Financial Management
BA 318	Principles of Marketing
BA 350	Business Information Systems and Applications

Business Administration Courses (Undergraduate)

BA 100 Introduction to Business

Introduction to basic concepts related to business practices; includes examination of local, regional, and national organizations in the business world.
Category 1. 3 credits.

BA 200 Principles of Management and Organizational Behavior

Prerequisite: BA 100

Study of management practices and behavior in organizational settings. Emphasis on introduction to managerial principles, concepts and fundamentals.
Category 1. 3 credits.

BA 210 Fundamentals of Accounting I

Principles, concepts, procedures, and techniques of financial accounting necessary to preparation, understanding, and interpretation of accounting information.
Category 1. 3 credits.

BA 220 Fundamentals of Accounting II

Prerequisite: BA 210

Continuation of topics covered in BA 210.
Category 1. 3 credits.

BA 230 Managerial Accounting

Prerequisite: BA 220

Analysis, interpretation and use of accounting data for effective managerial planning, control and decision-making.
Category 1. 3 credits.

BA 300 Problem Solving in Organizations

Prerequisite: BA 200

Continuation of concepts covered in BA 200 fundamentals course. Some application of topics to situations.
Category 1. 3 credits.

BA 301 Theories and Cases in Administration

Prerequisite: BA 300

Advanced study of the functions and processes of management. Application of topics covered in BA 300.
Category 3. 3 credits.

BA 305 Organizational Dynamics

Prerequisite: BA 200

A study of behavior principles which underlie the prevention and solution of problems in both individual and group contexts.
Category 1. 3 credits.

BA 306 Human Resource Management

Prerequisite: BA 305

An examination of human resource management including employment laws, recruiting/selection, training/ development, and benefits/compensation administration.
Category 2. 3 credits.

BA 312 Operations Management I

Prerequisites: BA 200, CS 120, MA 150 or EC 207

Applied analysis of operations in service and production systems using quantitative models and calculus; inventory, work measurement, scheduling, quality control.
Category 1. 3 credits.

BA 315 Quantitative Analysis and Information Systems

Prerequisite: CS 120

Introduction to basic quantitative analysis applied to management planning and operations systems. Includes business information systems and applications.
Category 3. 3 credits.

BA 316 Financial Management

Prerequisite: BA 220

Financial analysis, working capital management and basics of capital budgeting.
Category 1. 3 credits.

BA 318 Principles of Marketing

Prerequisite: BA 200

Overview of the full range of activities involved in marketing, develops an understanding of marketing principles, problems, and processes.
Category 1. 3 credits.

BA 320 Business Law I

Prerequisite: BA 200

Introduction to legal concepts as applied to the study of contracts, personal property, sales, and the Uniform Commercial Code.
Category 1. 3 credits.

BA 321 Business Law II

Prerequisite: BA 320

Continuation of topics covered in BA 320. Study of laws of partnerships and corporations.
Category 3. 3 credits.

BA 350 Business Information Systems and Applications

Prerequisites: BA 230 or BA 374, CS 120

Survey of automated business information systems and microcomputer applications with emphasis on business oriented software.
Category 1. 3 credits.

BA 360 Public Program Analysis

Prerequisite: BA 200

Focuses on the implementation and evaluation of governmental programs; why some work and others do not.
Category 3. 3 credits.

BA 361 Public Management

Prerequisite: BA 200

Emphasizes the key differences as well as the similarities between management practices in the private and public sectors.
Category 3. 3 credits.

BA 370 Intermediate Accounting I

Prerequisites: BA 210, BA 220

Accounting theory, principles, concepts, and procedures applied to balance sheet and income statement accounts. Presentation and interpretation of financial reports.
Category 1. 3 credits.

BA 371 Intermediate Accounting II

Prerequisite: BA 370

Continuation of BA 370.
Category 1. 3 credits.

BA 372 Advanced Accounting I

Prerequisite: BA 370

Mergers and consolidations; parent and subsidiary relationships; pooling of interests and purchases; fund accounting; price-level accounting.
Category 1. 3 credits.

BA 373 Advanced Accounting II

Prerequisite: BA 372

Special advanced topics including review of Accounting Research Bulletins of the AICPA.
Category 2. 3 credits.

BA 374 Cost Accounting

Prerequisites: BA 200, BA 210, BA 220

Accounting for costs in business enterprises. Emphasis placed on fundamental principles including job order, process, and standard costs.
Category 1. 3 credits.

BA 375 Federal Income Taxes I

Prerequisite: BA 370

A study of federal income taxation as applied to individuals.
Category 1. 3 credits.

BA 376 Auditing

Prerequisite: BA 370

Basic auditing concepts and developments and their application to the examination, evaluation and reporting of financial data.
Category 1. 3 credits.

BA 377 Federal Income Taxes II

Prerequisite: BA 375

Federal income taxes for corporations and partnerships.
Category 2. 3 credits.

BA 400 Management and Organizational Behavior I

Prerequisite: BA 305

Study of concepts, theory, research, and operational problems of organizational behavior; work groups and intergroup behavior models.
Category 3. 3 credits.

BA 401 Management and Organizational Behavior II

Prerequisite: BA 400

Continuation of topics covered in BA 400 with additional theory and case studies; behavioral science/systems approach is taken
Category 3. 3 credits.

BA 404 Advanced Topics in Financial Management

Prerequisite: BA 316

Advanced capital budgeting, capital structure, and long-term financing decisions, computer modeling using software packages, comprehensive cases in financial management.
Category 2. 3 credits.

BA 406 Trends in Marketing

Prerequisite: BA 318

Integrates all aspects of marketing theory through readings, case studies, class projects, individual projects, and computer simulation of marketing decisions.
Category 2. 3 credits.

BA 408 Operations Management II

Prerequisite: BA 312

Continuation of topics of BA 312 with focus on production planning and flow.
Category 3. 3 credits.

BA 409 Quantitative Analysis and Techniques I: Linear Models for Administration

Prerequisite: BA 315

Application of QA techniques to problems of linear programming, inventory models, and PERT-CPM networks.
Category 3. 3 credits.

BA 411 Purchasing, Materials Management, and Inventory Control

Prerequisite: BA 312

Detailed analysis of inventory control, including purchasing MRP, inventory control models, quality sampling, and transportation.
Category 3. 3 credits.

BA 415 Investment Analysis

Prerequisite: BA 316

Survey of investment vehicles, including stocks, bonds, real estate, commodities, mutual funds, and collectibles. Modern portfolio and valuation theories.
Category 1. 3 credits.

BA 416 Financial Markets and Institutions

Prerequisite: BA 316

Study of banks, investment banking, money markets, and the financial service industry as they affect long and short-term financing decisions.
Category 3. 3 credits.

BA 420 Marketing Research

Prerequisite: BA 318

Nature and scope of marketing research. Application of scientific methods, sources, and collection of data, reporting and evaluation.
Category 1. 3 credits.

BA 422 Retailing

Prerequisite: BA 318

Demand analysis, consumer behavior, and planning and control of the merchandising functions; retailing as a career.
Category 3. 3 credits.

BA 424 Advertising Management

Prerequisite: BA 318

Advertising from a marketing manager's perspective. Consumer, industrial, and professional promotion strategies with execution and control activities.
Category 3. 3 credits.

BA 426 Consumer Behavior

Prerequisite: BA 318

The analysis of the consumer decision process as it affects marketing management decisions. Major factors of influence in this process will be studied including culture, social class, family, and reference groups.
Category 3. 3 credits.

BA 428 Marketing to Industry and Government

Prerequisite: BA 318

Need identification, pricing policies, channels of distribution, selling and promotion to reach and satisfy the institutional consumer. Discussion of industrial and institutional buying behavior, bidding, and regulation.
Category 3. 3 credits.

BA 430 Administrative Practices and Management

Prerequisite: BA 305

Overview and analysis of human conduct in work-organization settings.
Category 3. 3 credits.

BA 432 Managing Career Development

Prerequisite: BA 305

Designed to train managers to assist employees in developing career perspectives, mid-career issues and concerns, and career issues for women and minorities.
Category 3. 3 credits.

BA 434 Management and Corporate Responsibility

Prerequisite: BA 200

The theoretical and practical relationships of corporate conflicts of interests, self-regulation, product liability, employee rights, etc. to management decisions.
Category 3. 3 credits.

BA 450 Health Systems in America

Prerequisites: BA 300, BA 305

A course focusing on the administration of institutions in the health area.
Category 3. 3 credits.

BA 462 Employee Relations in the Public Sector

Prerequisite: BA 361

A survey of practices in public personnel administration, emphasizing collective bargaining and the impact of unions.
Category 3. 3 credits.

BA 464 Government Budgeting Systems

Prerequisites: BA 220, BA 361

A "hands on" approach; how budgets are prepared and used as tools for policy-making.
Category 3. 3 credits.

BA 474 Corporate Law

Prerequisite: BA 320

Corporate powers and corporate management. Designed for future corporate executives and accountants.
Category 3. 3 credits.

BA 480 The Legal Environment of Business

Prerequisite: BA 200

The impact of governmental regulation on business and its response will be evaluated by unique debate-type format.
Category 1. 3 credits.

BA 481 Independent Study in Business Administration

Prerequisite: BA 200

Independent study in business administration, usually involving field work which is not an internship.
Category 1. 1-6 credits.

BA 482 Selected Topics in Business Administration

Prerequisites: BA 305, BA 316, BA 318

Selection of topics of mutual interest to the student and faculty.
Category 1. 1-6 credits.

BA 483 Internship in Health Administration

Prerequisite: BA 200

Practical experiences in operations of health administration, internships within cooperative health facilities with on-site supervision and evaluation.
Category 3. 1-6 credits.

BA 484 Internship in Public Administration

Prerequisite: BA 361

An opportunity to gain practical experience in the operations of government under the supervision of agency personnel.
Category 3. 1-12 credits.

BA 485 Practicum in Public Management

Prerequisite: BA 361

Group field work on a major project designed to improve the performance of a specific government agency.
Category 3. 1-9 credits.

BA 486 Internship in Business Administration

Prerequisites: BA 305, BA 316, BA 318

Practical experience in operations of business. Internships within co-operative firms with on-site supervision and evaluation.
Category 1. 1-12 credits.

BA 490 Business Strategy and Policy

Prerequisites: BA 316, BA 318

Capstone course integrating information provided in the functional areas such as finance, marketing, general management, business legal environment.
Category 1. 3 credits.

BA 491 Independent Study in Health Administration

Prerequisites: BA 200, BA 450

Independent study in health, usually involving field work which is not an internship.
Category 3. 1-6 credits.

BA 492 Selected Topics in Health Administration

Prerequisite: BA 361

Selected topics in health administration of mutual interest to the student and faculty.
Category 3. 1-6 credits.

BA 493 Selected Topics in Government Administration

Prerequisite: BA 361

Recent developments in public administration of mutual interest to students and faculty.
Category 3. 1-6 credits.

Business Administration Courses (Graduate)

BA 910 Managerial Economics for Administrators

Economics and operation of organizations; macro and micro theory, marginal analysis, price-output, and determinations.
3 credits.

BA 930 Behavioral Sciences for Administrators

Study of work-groups, intergroups, and individual behavior. Adapting human resource utilization concepts and theories, and other research findings.
3 credits.

BA 932 Operational Analysis and M.I.S.

Knowledge of management information systems including types, forms, uses, and costs. Decision-making, inventory, and PERT.
3 credits.

BA 935 Organizational Operations

Application of administrative tools to solution of logistic, operational, and production functions, utilization of technological assets.
3 credits.

BA 936 Financial Management

Application of administrative tools to problem analysis and solutions in finance; financial asset utilization.
3 credits.

BA 938 Marketing Management

Application of administrative tools to marketing functions from strategies to techniques.
3 credits.

BA 949 Administrative Policy Form and Strategy

Prerequisites: BA 910 or BA 935, BA 930, BA 938

Capstone integrative course designed to develop administrative skills, and implementation of strategies for organizations.
3 credits.

Economics

Lorna S. Gross, Assistant Professor (1990)
B.A., M.A., Ph.D., Clark University

George T. Kelley, Professor (1969)
A.B., College of the Holy Cross; M.A., Boston College; Ph.D., Clark University

Wei Pang Lee (1992)
B.A., Soo Chow University of Taipei; M.B.A., Northwest State University;
Ph.D., University of Georgia, Athens

F. Stephen Trimby, Associate Professor (1970)
A.B., Assumption College; M.A., Clark University

Economics offers a major program for students who wish to prepare for careers as economists in various governmental agencies, non-profit and industrial organizations, and academic institutions. Since it is frequently necessary to obtain additional training to qualify as a professional economist, the major program is designed to prepare students for advanced study. Omicron Delta Epsilon, the national honor society in economics is available to outstanding students.

Requirements for a Major in Economics: 33 credits

EC 110	Introduction to Microeconomics
EC 120	Introduction to Macroeconomics
EC 200	Macroeconomics
EC 201	Microeconomics
EC 207	Statistics (or another acceptable statistics course)

One of the following:

EC 305	Introduction to Mathematical Economics
EC 306	Introduction to Econometrics (or a course in which calculus is a primary topic)

The remaining 15 (or more) credits may be chosen from economics electives in accordance with special interests and career objectives.

Requirements for a Major in Economics, Concentration in Labor Studies-Labor Relations: All courses required for the major, plus

EC 202	Labor Economics
EC 311	Economics of Human Resources
BA 200	Principles of Management and Organizational Behavior
BA 305	Organizational Dynamics

Two of the following:

HI 208	American Immigrant History
HI 216	Economic History of the United States
HI 249	United States Labor History I
HI 250	United States Labor History II

Students are encouraged to take an internship if their program permits.

Requirements for a Minor: 18 credits

EC 110	Introduction to Microeconomics
EC 120	Introduction to Macroeconomics
EC 200	Macroeconomics or EC 20l Microeconomics

Any three additional Economics courses

Economics Courses

EC 102 Consumer Economics

An in-depth study of personal and family economics, obtaining income, buying wisely, consumer borrowing, aving, and financial investment; the consumer protection and consumer legislation movements will be specifically emphasized.
Category 1. 3 credits.

EC 110 Introduction to Microeconomics

An introduction to the operation of the American market system and to the behavior of its participants whether consumers, producers, the government, or other nations engaged in international trade with the United States.
Category 1. 3 credits.

EC 120 Introduction to Macroeconomics

Introduction to economic analysis with particular emphasis upon the national problems of achieving and maintaining full employment, general price stability, and growth of the American economy through time.
Category 1. 3 credits.

EC 200 Macroeconomics

Prerequisite: EC 120

An intermediate analysis of the determination of the level and growth of national income and employment, special attention given to the problems of inflation and recession and to the national fiscal and monetary policies designed to maintain full employment and stable price levels.
Category 1. 3 credits.

EC 201 Microeconomics

Prerequisite: EC 110, EC 120

An intermediate level treatment of the theory of market pricing in a private enterprise system as it affects the resource and output decision of firms and industries under various market structures and the behavior of consumers.
Category 1. 3 credits.

EC 202 Labor Economics

Prerequisite: EC 110

A study of the process of wage determination in a market economy, consideration given to the evolution of union organization and collective bargaining affecting wages, hours, working conditions, and grievance procedures for labor.
Category 1. 3 credits.

EC 203 Government Policy Toward Business

Prerequisite: EC 110

An analysis of the problems of competition and monopoly, especially as they affect concentration of economic activity and market power in the American industrial structure; emphasis is placed upon government policy to maintain or regulate competition in the public interest.
Category 1. 3 credits.

EC 205 Monetary Economics

Prerequisite: EC 120

The historical and theoretical development of the American money system of commercial banks and financial intermediaries; emphasis on the role of monetary controls and policy as partial solutions to full employment, price stability, and economic growth problems.
Category 2. 3 credits.

EC 206 Urban Economics

Prerequisite: EC 120

The theory and policy of the growth and development of metropolitan areas; some of the policy-related problems discussed are poverty, residential and commercial land use, and traffic congestion.
Category 2. 3 credits.

EC 207 Statistics

Prerequisite: EC 110 or EC 120

Basic tools of statistical analysis appropriate to research in the social sciences; topics include measures of central tendency, hypothesis testing, time series, index numbers, regression and correlation.
Category 2. 3 credits.

EC 208 Economics of Health Care

Prerequisite: EC 110

Introductory study of the health care industry of the United States; pricing of health care, manpower availability, alternative delivery systems, third party payments, and government role in planning, regulating, and financing health care.
Category 3. 3 credits.

EC 209 Human Capital in the Workplace

Prerequisite: EC 110

A study of investment in human resources and workplace programs to enhance employee productivity, job security and personal advancement.
Category 3. 3 credits.

EC 301 Economic Development

Prerequisites: EC 110, EC 120

A survey of contemporary economic theories concerning less developed countries; social, cultural, and political forces shaping the development of such countries are also investigated.
Category 3. 3 credits.

EC 302 Development Planning and Regional Economics

Prerequisites: EC 110, EC 120

A survey of the problems that must be dealt with by less-developed countries in planning their economic development. Theories of regional economics applicable to both developed and less developed economies.
Category 3. 3 credits.

EC 304 Economics of the Environment

Prerequisite: EC 110

Methods of pollution control and the socio-economic problems caused by pollution, current research on ecology and economics, and the impact that limits on pollution may have on income and population growth.
Category 3. 3 credits.

EC 305 Introduction to Mathematical Economics

Prerequisite: EC 110

A survey of some basic mathematical techniques appropriate to the analysis of economic models and application of economic theory.
Category 2. 3 credits.

EC 306 Introduction to Econometrics

Prerequisites: EC 110, MA 150 or EC 207

The application of statistical techniques to the verification of economic models and examination of economic problems.
Category 2. 3 credits.

EC 307 International Finance

Prerequisites: EC 110, EC 120

Study of how international trade and investment is financed in a world of floating, fixed and managed exchange rate systems.
Category 2. 3 credits.

EC 308 International Trade

Prerequisites: EC 110, EC 120

Reasons why nations gain by spatial specialization and exchange with other countries. Analysis of the mechanism by which international equilibrium is restored. Study of trade and foreign exchange policies.
Category 2. 3 credits.

EC 309 Public Spending and Taxation

Prerequisites: EC 110, EC 120

Analysis of government spending, revenue sharing and taxation; includes the impact of government spending upon efficient use of resources and national growth.
Category 3. 3 credits.

EC 312 Natural Resource Economics

Prerequisite: EC 110

The use of renewable and non-renewable natural resources in a market economy and the role of government policy concerning them.
Category 2. 3 credits

EC 400 Independent Study in Economics

Prerequisites: EC 200, EC 201

For the student whose needs cannot be fully met by available offerings; actual arrangements to be made between student and professor; not intended for general enrollment; a limit of three credits can be acquired.
Category 1. 1-3 credits.

EC 401 Seminar

Prerequisites: EC 200, EC 201

A research and discussion process intended to summarize and provide some career orientation to the undergraduate preparation of the economics major at the senior class level.
Category 3. 3 credits

EC 402 Internship in Economics

Prerequisites: EC 200, EC 201

Practical experience in economic analysis with industry, non-profit organizations, government agencies; internships may be of varying length.
Category 1. 1-12 credits.

Chemistry

Alan D. Cooper, Professor (1970)
B.S., Tufts University; M.A., Ph.D., Boston University

Arthur C. Ferguson, Professor (1970)
A.B., Oberlin College; Ph.D., University of Wisconsin

Melvin Merken, Professor (1958)
B.S., M.A., Tufts University; Ed.D., Boston University

Lloyd P. Wheaton, Associate Professor (1965)
A.B., Harvard University; M.S., Northeastern University

Estelle C. Zoll-Resnek, Professor (1967)
A.B. Boston University; Ph.D., University of Delaware

The chemistry program provides education and training in chemistry to students as part of their general education requirements and to those who wish to pursue careers in chemistry, allied health, or environmental science.

Requirements for a Major in Chemistry: 30-32 credits

CH 120 & CH 121	General Chemistry I and II
CH 201 & CH 202	Organic Chemistry I and II (Lectures)
CH 203	Organic Chemistry Laboratory I
CH 301 & CH 302	Physical Chemistry I and II (Lectures)
CH 303	Physical Chemistry Laboratory I
CH 210	Chemical Analysis: An Introduction to Modern Methods **or**
CH 470	Instrumental Analysis

A minimum of one additional course chosen from the following:

CH 204	Organic Chemistry Laboratory II
CH 210	Chemical Analysis: An Introduction to Modern Methods
CH 304	Physical Chemistry Laboratory II
CH 410	Biochemistry I
CH 411	Biochemistry II
CH 415	Nucleic Acids Biochemistry
CH 420	Qualitative Organic Analysis
CH 430	Advanced Inorganic Chemistry
CH 450	Special Topics in Physical Chemistry
CH 460	Natural Products
CH 470	Instrumental Analysis
CH 480	Internship in Chemistry
CH 490	Independent Study in Chemistry

In addition, majors are expected to complete the following ancillary courses: MA 200 & MA 201 Calculus I and II, PY 221 & PY 222 General Physics I and II or PY 241 & PY 242 Physics I and II.

Requirements for a Major in Chemistry, Concentration in Nuclear Medicine Technology: See program description under Biology.

Requirements for a Minor in Chemistry: 18 credits

CH 120 & CH 121 General Chemistry I and II

Ten (10) additional credits in 200- or higher level chemistry courses

Chemistry Courses (Undergraduate)

CH 105 Nature of Chemical Change

The properties of matter viewed through simple reactions of familiar substances. Two lectures and a two-hour laboratory per week.
Category 3. 3 credits.

CH 110 Introduction to General, Organic, and Biochemistry I

An introductory survey of chemistry. Topics include atomic structure, chemical bonding and reactions, acid-base theory, introduction to organic chemistry. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

CH 111 Introduction to General, Organic, and Biochemistry II

Prerequisite: CH 110

Continuation of CH 110. Topics include functional groups and reactions of organic compounds and topics in biochemistry such as carbohydrates, proteins, lipids, and metabolic pathways. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

CH 120 General Chemistry I

Modern survey of chemistry. Topics include chemical equations, properties of gases, atomic structure, periodic table, chemical bonding, chemistry of carbon. Three lecture hours and three laboratory hours per week. CH 120 and121 provide the foundation in for further courses in chemistry.
Category 1. 4 credits.

CH 121 General Chemistry II

Prerequisite: CH 120

Continuation of CH 120. Topics include elements of thermodynamics, acids and bases, reaction rates, oxidation-reduction reactions, and electrochemistry. Three lecture hours and three laboratory hours per week.
Category 1. 4 credits.

CH 140 Contemporary Chemistry

Discusses basic concepts of chemistry and its impact on society. Contemporary applications include DNA, drugs, foods, and energy. Intended as a distribution course. Laboratory and lecture.
Category 1. 4 credits.

CH 201 Organic Chemistry I (Lectures Only)

Prerequisites: CH 120, CH 121

Structure, reactions, mechanisms, and stereochemistry of the alkanes, alkenes, alkynes, dienes, alkyl halides. Introduction to aromatic chemistry.
Category 1. 3 credits.

CH 202 Organic Chemistry II (Lectures Only)

Prerequisite: CH 201

Continuation of CH 201. Reactions and mechanisms of aromatic chemistry; structures and reactions of alcohols, ethers, carboxylic acids, aldehydes, ketones.
Category 1. 3 credits.

CH 203 Organic Chemistry Laboratory I

Prerequisite or Corequisite: CH 201

Techniques of preparation, purification, and identification of aliphatic compounds. One four-hour laboratory per week.
Category 1. 2 credits.

CH 204 Organic Chemistry Laboratory II

Prerequisite: CH 203

Application of basic and more advanced techniques to increasingly complicated synthetic problems. One four-hour laboratory per week.
Category 1. 2 credits.

CH 210 Chemical Analysis: An Introduction to Modern Methods

Prerequisites: CH 120, CH 121

Introduction to modern methods of chemical analysis including gravimetry, acid-base and redoxtitrations, potentiometry, uv-visible and atomic absorption spectrophotometry, and gas and HPLC chromatography. Two lecture hours and six laboratory hours per week.
Category 1. 4 credits.

CH 220 Chemistry of Energy and the Environment

Prerequisites: CH 120, CH 121

Chemistry of the environment; chemical aspects of energy; and the environmental aspects of energy production and use.
Category 3. 3 credits.

CH 230 Foundations of Chemistry and Physics

Prerequisites: CH 120, CH 121, PY 241, PY 242, or consent of instructor

History, philosophy, methods, and concepts of physical sciences for science and non-science majors. Emphasizes an understanding of science and scientists.
Category 3. 3 credits.

CH 240 Pharmacology

Prerequisites: CH 110, CH 111, BI 161, BI 162

Modes of action of some of the major categories of drugs, their biological activities and responses within the human system.
Category 1. 3 credits.

CH 301 Physical Chemistry I (Lectures Only)

Prerequisites: CH 120, CH 121, MA 200, MA 201

Study of the first, second, and third laws of thermodynamics, and of chemical, solution, and phase equilibria. Three lecture hours per week.
Category 2. 3 credits.

CH 302 Physical Chemistry II (Lectures Only)

Prerequisite: CH 301

Continuation of CH 301. Topics include kinetics, quantum theory, chemical bonding, spectroscopy, and molecular structure. Three lecture hours per week.
Category 2. 3 credits.

CH 303 Physical Chemistry Laboratory I

Prerequisite or Corequisite: CH 301

Laboratory deals with methods of physical measurement of chemical systems and their application to the determination of thermodynamic data. One four hour laboratory per week.
Category 3. 2 credits.

CH 304 Physical Chemistry Laboratory II

Prerequisite or Corequisite: CH 302

Continuation of CH 303; project-oriented laboratory dealing with the study of reaction rates and mechanisms, electrochemistry, and molecular properties. One four hour laboratory per week.
Category 3. 2 credits.

CH/BI 410 Biochemistry I

Prerequisites: CH 201, CH 202

The chemistry of proteins, nucleic acids, carbohydrates, and lipids; enzymes, biological oxidations; and correlations in intermediary metabolism. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

CH/BI 411 Biochemistry II

Prerequisite: CH/BI 410

The generation and storage of metabolic energy; biosynthesis of macromolecular precursors, DNA, RNA, and protein; and biochemical regulation. Three lecture hours and three laboratory hours per week.
Category 2. 4 credits.

CH 415 Nucleic Acids Biochemistry

Prerequisites: CH 201, CH 202; CH 410 recommended

Structure and function of nucleic acids in prokaryotes and eukaryotes. Topics include nucleotide metabolism, replication, repair, and recombinant DNA techniques.
Category 3. 3 credits.

CH 420 Qualitative Organic Analysis

Prerequisites: CH 201, CH 202

Analysis of organic compounds including separation of mixtures and identification of compounds by their physical properties and preparation of their derivatives. Two lecture hours and four laboratory hours per week.
Category 3. 3 credits.

CH 430 Advanced Inorganic Chemistry

Prerequisite: CH 301

An in-depth presentation of topics such as wave mechanics, atomic structure, chemical bonding, spectroscopy, coordination chemistry, crystal field theory, and stereochemistry.
Category 3. 3 credits.

CH 450 Special Topics in Physical Chemistry

Prerequisites: CH 301, CH 302

Exploration of frontier areas of physical chemistry including chemical kinetics, quantum chemistry, molecular spectroscopy, and symmetry properties of molecules.
Category 3. 3 credits.

CH/BI 453 Radiopharmaceuticals

Prerequisite: Consent of NMT coordinator

Fundamental concepts of radiopharmaceutical production including basic radiochemistry.
Category 1. 4 credits.

CH 460 Natural Products

Prerequisites: CH 201, CH 202

An advanced organic chemistry course concerning the structure, synthesis, and biological significance of compounds such as alkaloids, terpenes, steroids, and antibiotics.
Category 3. 3 credits.

CH/BI 465 Clinical Nuclear Medicine Technology I

Prerequisite: Consent of NMT coordinator

Why a specific test is indicated; which radiopharmaceutical is preferred; and how the basic image appearance and/or numerical data may be altered by pathological states.
Category 1. 4 credits.

CH/BI 466 Clinical Nuclear Medicine Technology II

Prerequisite: Consent of NMT coordinator

Case presentations using formulas, charts, tables, and calculations to arrive at examination parameters such as amount of dose, number of counts, speed of instrument, etc.
Category 1. 4 credits.

CH 470 Instrumental Analysis

Prerequisites: CH 120, CH 121, together with CH 210 or CH 301 or two years of analytical laboratory experience

Advanced level survey of instrumental methods of separation and analysis including spectrophotometry, potentiometry, polarography, and chromatography. Laboratories are project-oriented. Two lecture hours and six laboratory hours per week.
Category 2. 4 credits.

CH 480 Chemistry Internship

Prerequisite: Consent of discipline

Project completed at an institution other than WSC by a student with a non-WSC sponsor and WSC liaison.
Category 1. 1-6 credits.

CH 490 Independent Study in Chemistry

Prerequisite: Consent of department

Advanced independent work on a research problem in chemistry mutually agreed to by the student and the instructor.
Category 1. 1-6 credits.

Chemistry Courses (Graduate)

CH 941 Biochemistry of Nucleic Acids

Prerequisite: Biochemistry I, Modern Biochemistry, or Biological Chemistry

The structure and function of DNA and RNA. Topics include bacterial, viral, and eukaryotic nucleic acids.
3 credits.

CH 942 Structure and Function of Proteins

Prerequisites: Biochemistry I, Modern Biochemistry, or Biological Chemistry

The biochemistry of proteins. Particular emphasis is given to enzymes and the kinetics of enzyme-catalyzed reactions.
3 credits.

CH 943 Laboratory Techniques in Biochemistry

Prerequisites: Biochemistry I, Modern Biochemistry, or Biological Chemistry

This course includes the isolation and characterization of biochemical compounds with emphasis on nucleic acids and proteins, including enzymes.
3 credits.

CH 990 Special Problems in Chemistry

Prerequisite: Consent of department

A laboratory or library research project conducted in consultation with a faculty member.
3 credits.

CH 991 Directed Study

Prerequisite: Consent of department

Designed for the student who wishes to undertake an individualized study in chemistry on a topic mutually agreeable to student and instructor.
1-4 credits.

CH 996 Internship in Chemistry

Prerequisite: Consent of department

Research project completed at an institution other than WSC by a student with a non-WSC sponsor and WSC liaison. Requires final typewritten report.
3 credits.

Communications

Maureen Asten, Assistant Instructor (1989) Department Chair
B.S., M.S., Indiana State University; Ed.D., University of Cincinnati

Donald F. Bullens, Assistant Professor (1986) Department Chair
B.S. Ed., M.Ed., Worcester State College

William Byers, Associate Professor (l97l)
A.B., Colby College; B.D., Kenyon College; M.Div., Colgate Rochester Divinity School

Linda K. Fuller, Associate Professor (1988)
B.A., Skidmore College; M.A., American International College;
Ph.D., University of Massachusetts

The communication program provides students the ability to apply communication skills and technologies to career opportunities in the fields of broadcasting, business, education, entertainment, human services and industry. The broad spectrum of communications (from interpersonal to collective or mass communications) is pursued through theoretical exploration and practical production. The discipline requires and provides hands-on experience through photographic studios and darkrooms, television studios, theatre and audio production facilities. Alpha Epsilon Rho, a national honor society, is available to academically outstanding majors and minors.

Requirements for a Major in Communications, Concentration in Communications Media: 36 credits including

CM 100	Introduction to Mass Communications
CM 199	Interpersonal Communications in Media
CM 263	Visual Media Design
CM 384	Media Criticism

and 24 additional credits in Communications

Requirements for a Major in Communications, Concentration in Theatre:

CM 100	Introduction to Mass Communications
TH 135	Oral Interpretation of Literature
TH 191	Introduction to the Theatre

and 27 additional credits in Communications

Requirements for a Major in Communications, Concentration in Film and Electronic Media:

CM 100	Introduction to Mass Communications
CM 110	Speech or CM 199 Interpersonal Communications in Media
CM 241	Understanding Movies
CM 263	Visual Media Design
CM 384	Media Criticism

and 21 additional credits from:

CM 150	Introduction to Photography
CM 231	Photography II
CM 243	Introduction to Film Animation
CM 244	Media Graphics
CM 259	Television Production
CM 260	Introduction to Video
CM 348	Producing and Directing Audio Programs
CM 360	Television Production II
CM 366	Scriptwriting
CM 367	Photojournalism
CM 37I	Corporate Video
CM 373	Mediated Graphic Design I
CM 396	Video Editing
CM 404	Independent Study in Media
CM 410	Special Topics
CM 435	Media Internship

Requirements for a Minor: 18 credits including

CM 100	Introduction to Mass Communications
CM 199	Interpersonal Communication in Media

Communications Courses

NOTE: Communications courses were formerly designated "ME—-", e.g., CM 100 is the equivalent of ME 100, a change in the department title but does not affect the curriculum nor specific courses listed below.

CM 100 Introduction to Mass Communications

An integrated examination of the history, theory, structure, process, and effects of each of the mass media.
Category 1. 3 credits.

CM 101 Library Skills for Research

The course covers the basics of library research: search strategies and how to use both print and automated research tools.
Category 3. 1 credit.

CM 103 Survey of Radio and Television

Perspectives on the development of radio and television technologies, programming, regulation, and economic support, and their impact.
Category 1. 3 credits.

CM 106 Fundamentals of Library Use

Understanding the organization and use of a college library to develop skills for course-related library research.
Category 3. 3 credits.

CM 110 Speech

Essentials of speech production and speech writing for large and small groups. Classroom practice in delivering various types of speeches.
Category 1. 3 credits.

CM 150 Photography I

Covers the basic theory and practice of 35mm B/W photography, including camera handling, film processing, light meters, printing and picture content.
Category 1. 3 credits.

CM 199 Interpersonal Communications in Media

Study of the communications process as it relates to the production of material in various media, including video, audio, film.
Category 1. 3 credits.

CM 201 Sources of Media Information

Prerequisite: CM 100

Study of the most important sources of information in media; students will use the Learning Resources Center for solving problems.
Category 2. 3 credits.

CM 205 Telecommunications

Prerequisite: CM 103 or CM 125

Examines the technologies used for capturing, storing, and transmitting data, voice, and images in both business and mass media applications.
Category 2. 3 credits

CM 231 Photography II

Prerequisite: CM 150

Expands basic skills in camera craft, film and print processing and presentation. Instruction and practice in the Zone System, theory and practice of advanced exposure and film development control. Emphasis on photographic composition and efficiency in designing purposeful photographic statements.
Category 1. 3 credits.

CM 241 Understanding Movies

An introduction to the aesthetics and critical theories of film as an artistic medium of communication through critical observation of classic and contemporary movies.
Category 3. 3 credits.

CM 243 Introduction to Film Animation

Using Super 8mm motion picture format, students will plan and produce an animated film employing basic art techniques and graphics.
Category 2. 3 credits.

CM 244 Media Graphics

Creating visual instructional media; applying lettering, graphics, and display techniques; end products include visuals for projected and non-projected use.
Category 1. 3 credits.

CM 249 History of the Motion Picture

The history and development of the motion picture from Edison and Lumiere (1895) to Welles (1941).
Category 3. 3 credits.

CM 255 Designing Instructional Media Modules

Prerequisite: CM 100

A systems approach to the design of instructional media with an emphasis on the development of computer-managed interactive video.
Category 3. 3 credits.

CM 259 Television Production

Basics of studio production including visualization and sequencing of short scripts, sound, graphics, lighting, and technical direction.
Category 2. 3 credits.

CM 260 Introduction to Video

A beginning course in video program production, using lightweight and portable equipment.
Category 1. 3 credits.

CM 263 Visual Media Design

Prerequisite: CM 100

An introduction to principles affecting image design, to elements of design and visual perception and their application in various media.
Category 1. 3 credits.

CM 299 Advanced Interpersonal Communications

Prerequisite: CM 199

Advanced study of the communication process, including those materials produced in various media: video/audio/film.
Category 3. 3 credits.

CM 301 Communication Theory

Prerequisite: CM 100

Examines the nature and origins of symbol systems, the make up of audiences, the effects of mass media, and concomitant research.
Category 3. 3 credits.

CM 347 Producing Slide and Sound Programs

Prerequisite: CM 150

Planning and producing slide programs with music and narration; techniques of storyboarding, copying, and synchronizing audio with visual materials.
Category 2. 3 credits.

CM 348 Producing and Directing Audio Programs

Prerequisite: CM 100

Writing, selecting and recording sound and assembling audio programs; radio production; use of portable and studio equipment; critiques of student programs.
Category 2. 3 credits.

CM 360 Television Production II

Prerequisites: CM 259 or CM 260

The student will gain experience in the areas of electronic videotape editing, technology of television engineering, creative video, remote production and other advanced techniques. Primary emphasis is on the production of programs utilizing advanced techniques.
Category 1. 3 credits.

CM 361 Elements of Closed Circuit Television

Prerequisite: CM 100 or CM 103

Theory and practice in the use of closed circuit television, including teleconferencing, cable and Instructional Television Fixed Service.
Category 3. 3 credits.

CM 366 Scriptwriting

Prerequisite: CM 100

Creating scripted material for the electronic media. All types, styles, and formats will be covered.
Category 2. 3 credits.

CM 367 Photojournalism

Prerequisites: CM 150, CM 231

The theory and practice of narrative photography applicable to daily news, feature story and commercial journalism.
Category 2. 3 credits.

CM 370 Media Advertising and Publicity

Prerequisite: CM 100

The basics of creating, preparing, and disseminating advertising and publicity materials through the media. Print and non-print channels are covered.
Category 3. 3 credits.

CM 371 Corporate Video

Prerequisite: CM 366

An examination of the principles, planning and production of audio/video materials specifically designed for training and instructional purposes.
Category 3. 3 credits.

CM 373 Mediated Graphic Design I

Prerequisite: CM 244

Introduction to using practical techniques and tools to create graphic design images through the use of computerized media.
Category 3. 3 credits.

CM 384 Media Criticism

Prerequisite: CM 100

Evaluation and analysis of film, television, theatre, and radio performances, development of intelligent, ethical standards of judgment.
Category 1. 3 credits.

CM 396 Video Editing

Prerequisite: CM 259 or CM 260

The principles and procedures of editing one-half-inch and three-quarter-inch videotape using manual and electronic techniques and equipment. Students will produce short, edited programs.
Category 3. 3 credits.

CM 404 Independent Study in Media

Prerequisite: CM 100

Permits advanced students to investigate topic of special interest through research or production of a project. Periodic consultations with advisor.
Category 1. 1-6 credits.

CM 410 Special Topics

Prerequisite: Nine credits in Communications

The in-depth examination of an area of interest in film, television, theatre, or radio. One-time only subjects, not covered in other departmental offerings.
Category 3. 3 credits.

CM 435 Media Internship

Prerequisite: Two relevant communications courses and consent of department provides opportunity to advanced students to increase experience through internship with sponsoring community organization, institution, or business under appropriate supervision.

Category 1. 3-12 credits.

Communication Disorders

Anna B. Cohen, Professor (1973)
A.B., Newark State College; M.A., University of Wisconsin; Ed.D., Columbia University

Carol E. Lysaght, Professor (1972)
B.S., Salem State College; Ed.M., Ed.D., Boston University

John F. McLaughlin, Associate Professor (1968)
B.S., College of the Holy Cross; Ed.M., Worcester State College

Maryann H. Power, Professor (1979)
A.B., University of Massachusetts; Ed.M., Salem State College; Ed.D., Clark University

Susan V. Rezen, Professor (1980), Department Chair
A.B., State University of New York, Albany; M.S., Purdue University;
Ph.D., Syracuse University

James R. Wicka, Assistant Professor (1992)
B.A., University of Omaha; M.A., Columbia University; Ed.D., Columbia University

Communication Disorders majors receive training in the normal processes of speech, language, and hearing and their associated pathologies, with exposure to evaluation and rehabilitative concepts.

Requirements for a Major: 39 credits

CD 100	Introduction to Human Communication and its Disorders
CD 105	Phonetics
CD 110	Anatomy and Physiology of Speech and Hearing
CD 115	Normal Development of Speech and Language
CD 201	Hearing Science
CD 202	Speech Science
CD 205	Audiology
CD 210	Language Disorders
CD 220	Speech Disorders
CD 300	Rehabilitation of the Auditorily Impaired
CD 310	Speech/Language Practicum
Electives:	Six credits in Communication Disorders

Students will be screened for adequate speech and language patterns and recommendations made for therapy when appropriate.

Requirements for a Minor: 18 credits within the department; 12 credits must include:

CD 100	Introduction to Human Communication and its Disorders
CD 105	Phonetics
CD 110	Anatomy and Physiology of Speech and Hearing
CD 115	Normal Development of Speech and Language

For students taking prerequisites for the Speech-Language Pathology graduate program, the other two courses must be CD 201 Hearing Science and CD 202 Speech Science.

Graduate Program

Master of Science in Speech-Language Pathology

This program is accredited by the American Speech Language Hearing Association and approved by the Massachusetts Bureau of Teacher Certification.

Admission Requirements: Students must meet general graduate admission requirements and have adequate undergraduate grades and Graduate Record Examination or Miller Analogies Test scores. In addition, students must have completed 27 semester credit hours in the basic sciences: including at least 6 credit hours in the biological/physical sciences with at least 3 of them in mathematics, 6 credit hours in the behavioral and/or social sciences including one course in child development, 15 credits in the basic human communication processes (anatomic and physiologic, physical and psychophysical, linguistic and psycholinguistic), and a course in statistics. Final candidates will be interviewed by department, faculty/staff.

Requirements of the program:

CD 920	Articulatory and Phonological Disorders
CD 921	Language Disorders in Children
CD 922	Language Disorders in Adults
CD 923	Rate & Rhythm Disorders
CD 924	Voice Disorders
CD 925	Neurological Disorders
CD 926	Cleft Palate
CD 927	Clinical Audiology
CD 928	Aural Rehabilitation Theory
CD 940	Diagnostic Evaluation: Methods and Procedures
CD 980	Research in Communication Disorders
CD 985	Seminar in Speech Pathology
CD 990	Clinical Practicum in Speech Pathology; taken one to three times as needed to accumulate the required clinical hours designated by the American Speech Language Hearing Association
CD 946	Organization of Speech/Language Programs in the Schools (1 credit) *Must be taken if Massachusetts Teacher Certification is sought.
CD 993	Clinical Practicum in Audiology (if needed to accumulate required clinical hours)

Students must demonstrate competence in a foreign language or computer language or American Sign Language during their program of study. If courses in these areas are taken at an institution other than Worcester State College, or at WSC prior to acceptance into the program, the student must pass a competency exam given at Worcester State College. If courses are taken at Worcester State College during their program, no separate competency exam is required, but students must earn a grade of at least C.

Students will be expected to submit a passing score from the NESPA examination in Speech/Language Pathology as a prerequisite to graduate.

"As a capstone experience, during the research course, each student will conceive and carry out a viable investigative study in normal or disorded communication".

In addition to academic coursework, students are required to complete 25 hours of observation of clinical work and 350 live hours of actual participation in diagnostic/therapeutic work. Up to 20 of the observation and 125 of the live hours may be transferred from the undergraduate level with appropriate documentation.

The American Speech Language Hearing Association (ASHA) requires that 21 semester credits of graduate speech/language coursework and 250 clock hours of graduate speech/language clinical practicum be earned from an ESB accredited program. This will be considered when transferring course credit.

ASHA also requires at least 75 semester credit hours that reflect a well-integrated program. The requirements for this program account for 68 such credits. The remaining 7 credits, while not required for the degree, may have to be earned prior to certification by ASHA if a student's background does not reflect additional coursework in the biological/physical sciences, mathematics, the behavioral/social sciences, normal communication or its disorders.

All work for the degree must be completed within a period of six years of the date of admission to the program.

Only credits for which students have earned a B- or higher within a two-year period immediately prior to the date of their acceptance into the program are transferable from an accredited institution, including credits earned at Worcester State College. A maximum of 12 such transfer credits may be accepted. A minimum of 29 semester hours must be earned at Worcester State College.

Communication Disorders Courses (Undergraduate)

CD 100 Introduction to Human Communication and its Disorders

Nature and causes of organic and functional speech, language and hearing problems, general awareness of diagnostic and therapeutic techniques.
Category 1. 3 credits.

CD 105 Phonetics

A study of the sounds of the American English language, their production, their representation by international phonetic symbols, and their graphic transcription.
Category 1. 3 credits.

CD 110 Anatomy and Physiology of Speech and Hearing

Normal anatomy and physiology of the speech and hearing mechanisms with emphasis on respiration, phonation, resonance, articulation, and audition.
Category 1. 3 credits.

CD 115 Normal Development of Speech and Language

An in-depth coverage of the normal acquisition and development of speech and language, including phonology, morphology, syntax, semantics and pragmatics.
Category 1. 3 credits.

CD 120 Introduction to Sign Language

Sign language systems and fingerspelling with emphasis on American Sign Language vocabulary and word order.
Category 1. 3 credits.

CD 125 Principles of Teaching the Handicapped

Special methods and techniques for teaching the handicapped who have speech and hearing impairments; e.g., cleft palate, hearing loss, cerebral palsy.
Category 2. 3 credits.

CD 201 Hearing Science

Prerequisites: CD 105, CD 110

Basic information to understand concepts in audiology: physical concepts, acoustics, psychoacoustics, measurement of sound and speech perception theories.
Category 1. 3 credits.

CD 202 Speech Science

Prerequisites: CD 105, CD 110

Basic information to understand concepts in speech; physical and psychophysical bases, linguistic and psycholinguistic aspects and clinical instruments.
Category 1. 3 credits.

CD 205 Audiology

Prerequisite: CD 201

Introduction to audiometric testing techniques and interpretation as related to ear pathologies.
Category 1. 3 credits.

CD 210 Language Disorders

Prerequisites: CD 100, CD 105, CD 110, CD 115

Examination of the processes interfering with normal language acquisition and the disorders which disturb established language skills in children and adults.
Category 1. 3 credits.

CD 220 Speech Disorders

Prerequisites: CD 100, CD 105, CD 110, CD 115, CD 201, CD 202

Study of the theoretical bases of articulation, voice and fluency disorders. Etiology, characteristics, evaluation and rehabilitation of these disorders.
Category 1. 3 credits.

CD 225 Neurological Disorders of Speech

Prerequisites: CD 100, CD 105, CD 110, CD 115, CD 210

Communication difficulties associated with cerebral insult; rehabilitative procedures in speech and language.
Category 3. 3 credits.

CD 300 Rehabilitation of the Auditorily Impaired

Prerequisites: CD 100, CD 105, CD 110, CD 201, CD 202, CD 205

Theory of practices used to improve communication for the hearing impaired; visual/auditory perception of speech, amplification, behavior modification.
Category 1. 3 credits.

CD 307 Intermediate Sign Language

Prerequisite: CD 120

Students gain more facility in sign usage. Receptive and expressive vocabularies are expanded and fluency increased.
Category 1. 3 credits.

CD 310 Speech/Language Practicum

Prerequisites: CD 205, CD 210, CD 220

Observation and live practicum experience in evaluation, diagnosis, and treatment of speech/language disorders; majors only.
Category 1. 3 credits.

CD 315 Language Therapy for the Deaf and Hard of Hearing

Prerequisites: CD 205, CD 210

Receptive and expressive language acquisition, appraisal and remediation of the hearing impaired.
Category 3. 3 credits.

CD 320 Clinical Audiology Practicum

Prerequisites: CD 205, majors only

Review of audiometric techniques and practicum experiences in basic hearing evaluation procedures. May be taken twice.
Category 1. 3 credits.

CD 410 Tests and Measurements in Speech Correction

Prerequisite: CD 210, CD 220

Review of diagnostic tests and procedures used in the diagnosis of speech, language, and hearing disorders.
Category 3. 3 credits.

CD 475 Selected Topics in Communication Disorders

Prerequisites: CD 210, CD 220

Selection of topics of mutual interest to the student and faculty. Timely topics and issues will be covered.
Category 3. 3 credits.

CD 490 Independent Study in Communication Disorders

Prerequisite: Junior and senior majors only

The student will pursue an area of special interest in speech pathology or audiology through research or field experience, under faculty supervision.
Category 1. 1-6 credits.

Communication Disorders Courses (Graduate)

CD 910 Speech/Language Development, Differences and Diversity

Students gain an in-depth understanding of speech/language development, knowledge of cultural differences and the disorders of speech/language.
3 credits.

CD 915 Microcomputers in Language Assessment, Development, and Enhancement

Prerequisites: CD 100, CD 115

Students will learn about current and potential uses of microcomputers and microprocessor technology with language-impaired children and adults.
3 credits.

CD 920 Articulatory and Phonological Disorders

Prerequisites: CD 105, CD 110, CD 115, CD 201, CD 202

Review of the anatomy/physiology of the articulatory mechanism. Study of etiology, diagnosis and treatment of developmental and organic factors.
3 credits.

CD 921 Language Disorders in Children

Prerequisite: CD 115, CD 201, CD 202

Discussion of processes interfering with normal language acquisition and the disorders which disturb established language skills in children.
3 credits.

CD 922 Language Disorders in Adults

Prerequisites: CD 105, CD 110, CD 115, CD 201, CD 202

Study of processes and events which disturb established language skills in adults and subsequent diagnostic and treatment of those disorders.
3 credits.

CD 923 Rate and Rhythm Disorders

Prerequisites: CD 110, CD 115, CD 201, CD 202

An in-depth study of the etiological theories and behaviors of rhythm disorders in children and adults.
3 credits.

CD 924 Voice Disorders

Prerequisites: CD 110, CD 115, CD 201, CD 202

Discussion of vocal mechanism anatomy, physiology, and pathology. Detailed study of etiology, diagnosis, and treatment of functional and organic voice disorders.
3 credits.

CD 925 Neurological Disorders

Prerequisites: CD105, II0, II5, 201, 202

Study of neurological processes and disorders which interfere with and interrupt established speech/language skills in children and adults, and subsequent diagnosis and treatment of those disorders.
3 credits.

CD 926 Cleft Palate

Prerequisites: CD 105, 110, 115, 201, 202

Study of the development of craniofacial structure, classification of clefts, surgical repair and diagnosis, and treatment of related speech/language disorders.
2 credits.

CD 927 Clinical Audiology

Prerequisites: CD 110, CD 201, CD 202

Tests and techniques for the measurement of auditory processes. Interpretation of the test results and implications for remediation.
3 credits.

CD 928 Aural Rehabilitation Theory

Prerequisite: CD 927

Theory and practice of evaluation and management of the hearing impaired.
3 credits.

CD 940 Diagnostic Evaluation: Methods and Procedures

Prerequisites: CD 920, CD 921 or CD 922

Intensive study of communication evaluation techniques. Includes test selection, administration, interpretation followed by report writing, and remedial planning. (Enrollment is limited and requires written permission of the department.)
3 credits.

CD 943 Speech and Voice Science

Prerequisites: CD 201, CD 202

An in-depth study of speech as a science, including in-depth acoustics, psychoacoustics, anatomy and physiology as they relate to the production, transmission, and perception of speech. Introduces such laboratory instruments as the spectrograph, delayed auditory feedback, manometer, and sound level meter.
3 credits.

CD 945 Auditory Processing Disorders and Techniques of Remediation in the Classroom

A course designed for speech language pathologists and other school personnel. Includes types of auditory problems, associated symptoms, diagnostic report interpretation, and habilitative teaching techniques.
3 credits.

CD 946 Organization of Speech/Language Programs in the Schools

Prerequisites: CD 920, CD 921

This course covers information necessary to develop and manage a public school caseload.
1 credit.

CD 948 Current Events in Communication Disorders

Prerequisite: CD major or professional in the field

Review current events in communication disorders by reading and evaluating current print and non-print materials dealing with communication disorders.
3 credits.

CD 970 Independent Study in Communication Disorders

Prerequisite: Major in communication disorders

Students may elect to take an independent study in course content, practicum experience, or independent research.
1-3 credits.

CD 980 Research in Communication Disorders

Prerequisites: CD 105, CD 110, CD 201, CD 202, CD 115, an undergraduate or graduate course in statistics

Review and critical analysis of research in the field of communication disorders. Students will write an original research proposal. (Enrollment is limited and requires written permission of the department.)
3 credits.

CD 985 Seminar in Speech Pathology

Prerequisite: Completion of a minimum of 18 graduate credits in speech-language pathology

Study and discussion of current research techniques and professional trends in the field of speech/language pathology. Semester topics will vary. (Enrollment is limited and requires written permission of the department.)
3 credits.

CD 987 Special Topics in Communication Disorders

Prerequisites: CD 920, CD 921, CD 922

In-depth studies of contemporary issues in human communication disorders.
1-3 credits.

CD 990 Clinical Practicum in Speech Pathology

Prerequisites: CD 920, CD 921 or CD 922

Experience in the diagnosis and treatment of speech and language disorders in a variety of clinical settings. Speech pathology majors register for three credits the first semester, one to three credits thereafter until 350 practicum hours are completed. (Enrollment is limited and requires written permission of the department.)
1-3 credits.

CD 993 Clinical Practicum in Audiology

Prerequisite: CD 927

Supervised clinical experience in the evaluation of the hearing impaired. (Enrollment is limited and requires written permission of the department.)
3 credits.

CD 997 Thesis Research in Communication Disorders

Prerequisite: CD 980

Original research in Communication Disorders under the supervision of a member of the faculty, and an acceptable thesis.
Three credits per semester for two semesters.

Education

Joshua U. Aisiku, Professor (1985)
A.B., University of Ife; M.A., Ph.D., Cornell University

Elizabeth T. Binstock, Professor (1985)
A.B., Wellesley College; M.Ed., Boston University; Ed.D., Harvard University

Josefina S. Bunuan, Professor (1969)
A.B., University of the Philippines; M.Ed., Boston College; Ed.D., Boston University; Dipl. in ECE, Melbourne College

John R. Dowling, Professor (1966)
B.S., Ed.M., Worcester State College; Ed.D. University of Massachusetts

Nancy E. Harris, Professor (1970)
A.B., Clark University; M.A., University of Massachusetts; Ed.D., Boston University

Nancy A. Johnson, Professor (1968)
A.B., M.A., Clark University; Ed.D., Boston University

Joan K. Juralewicz, Associate Professor (1987)
A.B., Montclair State College; M.A., Seton Hall University; Ed.D. Rutgers University

Mary Ellen Meegan, Professor (1971)
B.S., Framingham State College; M.Ed., Ph.D., Boston College

Paul F. O'Neil, Associate Professor (1963)
B.S., College of the Holy Cross; B.S., M.Ed., Worcester State College

Chad C. Osborne, Professor (1970)
A.B., Yale University; M.A., Stanford University; Ed.D., University of Massachusetts

David H. Quist, Professor (1970), Department Chair
A.B., M.A., Ed.D. Clark University

The Department of Education offers a wide range of undergraduate and graduate programs in professional education. Students can become credentialed to teach in preschool day care, or certified to teach in elementary, middle, or secondary schools. The department programs offer a blending of classroom and field work approaches. Kappa Delta Pi, the national honor society in education, is available to outstanding upper-division students. Graduate programs provide opportunities for students to prepare for careers in education—as early childhood, elementary, middle, or secondary teachers.

To teach in the Commonwealth of Massachusetts requires a teaching certificate. Under the guidelines of the Massachusetts Education Reform Act that goes into effect October I, I994 there will be a two stage Certification process. Provisional will be at the bachelor's level. Full certification will come with completion of a Masters Degree in Elementary Education, Early Childhood Education, or Middle/Secondary Education.

Early Childhood Education Major Teacher Certification Program

The Early Childhood Education major prepares candidates for state certification as teachers of children, birth through grade 3. Students may elect courses that will assist them in meeting Office for Children requirements for teachers at the preschool level in group day care settings. The program of study is based upon a broad liberal arts foundation and integrated into the professional teacher preparation program. A course waiver process is available for transfer students where appropriate.

Requirements for a Major in Early Childhood Education: 36 credits

ED 160	Early Childhood Education Today
ED 206	Young Children, Learning, and Special Needs
ED 211	Curriculum and Evaluation in Early Childhood Education
ED 300	ECE: Multiculturalism and Social Studies
ED 308	ECE: Math
ED 309	ECE: Science
ED 317	ECE: Early Literacy, Children's Literature, Language Arts
ED 400	Integrated Early Childhood Education
ED 430	Student Teaching in Early Childhood Education

Prerequisite courses:

PS 210	Child Growth and Development
CD 115	Normal Development of Speech and Language.

By taking the following additional courses, a candidate can meet Office for Children group day care licensure at the preschool level as a teacher.

ED 313	Field Experience in Early Childhood Education
ED 319	Advanced Field Experience in Early Childhood Education

Early Childhood Education majors seeking provisional state teacher certification must also complete an academic major in the arts or sciences offered at the College and approved by the Department.

Admission to the Early Childhood Education Major

Students who plan to major in Early Childhood Education will progress through a three stage process. Each stage must be satisfactorily completed before passage to the next stage.

Stage 1 Pre-Early Childhood Education Major

1. Competence in communication skills as demonstrated by completion of the following courses with a grade of C or higher:

EN 102	English Composition II (or equivalent)
ME 110	Speech (or equivalent)

2. Potential for teaching children as demonstrated by completion of the following courses with a grade of C or higher and an average of 2.5 across all prerequisite courses.

PS 210	Child Growth and Development
ED 160	Early Childhood Education Today
ED 206	Young Children, Learning, and Special Needs
ED 211	Curriculum and Evaluation in Early Childhood Education

3. Satisfactory completion of a minimum of 60 credits of undergraduate study with a GPA of 2.5 or higher.
4. Any departure from the prescribed program of study for teacher certification must have waiver committee approval prior to advancement to Stage 2.

Stage 2 Early Childhood Education Major

1. Upon satisfactory completion of Stage 1 requirements, the student is eligible to apply for formal admission to the Early Childhood Education Major. This application will be reviewed by the Educational Standards Review Committee. The application must include a satisfactory physical examination and Mantoux test and transcripts of all previous course work. Approval by the Educational Standards Review Committee is necessary for a student to progress to Stage 2.
2. Satisfactory completion of the following with a grade of C+ or higher and an average of 2.7 for prerequisite certification courses or their equivalents.

ED 300	ECE: Multiculturalism and Social Studies
ED 308	ECE: Math
ED 309	ECE: Science
ED 317	ECE: Early Literacy, Children's Literature, Language Arts

3. A GPA of 2.7 or higher in all course work by the end of Stage 2.

Stage 3 Early Childhood Education Major - Practicum

1. Upon satisfactory completion of Stage 2 requirements, the student is eligible to apply for formal admission into the Practicum, ED 430 Student Teaching in Early Childhood Education.
2. Students must have attained senior standing to student teach.
3. This application will be reviewed and acted upon by the Educational Standards Review Committee.
4. Students convicted of a felony may be denied admission to student teaching.

Additional information regarding formal application to student teaching is available in the Education Office, G28.

Elementary Education Major Teacher Certification Program

The Elementary Education major prepares candidates for state certification as a teacher of children, grades 1 through 6. The program of study is based upon a broad liberal arts foundation integrated into the professional teacher preparation program. A course waiver process is available for transfer students where appropriate.

Requirements for a Major in Elementary Education: 33 credits

ED 155	Teaching and Learning Elementary School
ED 250	Educational Psychology
ED 320	Elementary Science
ED 325	Elementary Math
ED 330	Elementary Social Studies & Multiculturalism
ED 340	Elementary Language Arts and Literature
ED 435	Elementary Reading
ED 425	Seminar: Applying Educational Principles
ED 435	Student Teaching in the Elementary School

Elementary Education majors seeking provisional state teacher certification must also complete an academic major in the arts or sciences offered at the College and approved by the department.

Admission to the Elementary Education Major

Students planning to major in Elementary Education will progress through a three stage process. Each stage must be satisfactorily completed before passage to the next stage.

Stage 1 Pre-Elementary Education Major

1. Competence in communication skills as demonstrated by completion of the following courses with a grade of C or higher:

EN 102	English Composition II (or equivalent)
ME 110	Speech (or equivalent)

2. Potential for teaching children as demonstrated by completion of the following courses with a grade of C or higher and an average of 2.5 across all prerequisite courses.

HE/PE 150	Health & Physical Education for the Teacher
	or
HE l00	Personal Health(or equivalent)
PS 210	Child Growth and Development
ED 155	Teaching and Learning in the Elementary School
ED 250	Educational Psychology

3. Satisfactory completion of a minimum of 60 credits of undergraduate study with a GPA of 2.5 or higher.
4. Any departure from the prescribed program of study for teacher certification must have waiver committee approval prior to advancement to Stage 2.

Stage 2 Elementary Education Major

1. Upon satisfactory completion of Stage 1 requirements, the student is eligible to apply for formal admission to the Elementary Education Major. This application will be reviewed by the Educational Standards Review Committee. The application must include a satisfactory physical examination form and Mantoux test and transcripts of all previous course work. Approval by the Educational Standards Review Committee is necessary for the student to progress to Stage 2.
2. Satisfactory completion of the following courses with a grade of C+ or higher and an average of 2.7 for prerequisite certification courses.

ED 320	Elementary Science
ED 325	Elementary Math
ED 330	Elementary Social Studies & Multiculturalism
ED 340	Elementary Language Arts and Literature
ED 345	Elementary Reading

3. A GPA of 2.7 in all course work and at least 24 credits or the liberal art/sciences major must be completed by the end of Stage 2.

Stage 3 Elementary Education Major - Practicum

1. Upon satisfactory completion of Stage 2 requirements, the student is eligible to apply for formal admission into the Practicum, ED 435 Student Teaching in the Elementary School.
2. Students must have attained senior standing to student teach.
3. This application will be reviewed and acted upon by the Educational Standards Review Committee.
4. Students convicted of a felony may be denied admission to student teaching.

Additional information regarding formal application into student teaching is available in the Education Office, G28.

Secondary Education Teacher Certification Programs

Worcester State College offers provisional certification programs in secondary education (grades 9-12) and middle school education (grades 5-9) at the undergraduate level and full certification programs in secondary education (grades 9-12) and middle school education (grades 5-9) at the graduate level.

Admission Requirements: undergraduate program.
Students planning to minor in Middle/secondary Education will progress through a three stage process. Each stage must be completed satisfactorily prior to passage to the next stage.

Stage 1 Middle/Secondary Education

1. Completion of EN 102 English Composition II with a grade of C or higher.
2. Completion of 15 semester hours in the subject major.
3. Completion of at least two (2) middle/secondary education courses with a grade of C or higher. Average GPA of 2.5 across all coursework.
4. Any departure from the prescribed program of study for teacher certification must have waiver committee approval prior to advancement to Stage 2.

Stage 2 Middle/Secondary Education Minor

1. Upon satisfactory completion of Stage 1 requirements, the student is eligible to apply for formal admission into the middle/secondary education minor. This application will be reviewed by the Educational Standards Review Committee. The application must include a satisfactory physical examination and Mantoux test, and transcripts of all previous course work. Approval by the Educational Standards Review Committee is necessary for the student to progress to Stage 2.
2. Satisfactory completion of all subsequent pre-practicum courses with a grade of C or higher and an average of 2.5 for prerequisite certification courses.
3. A GPA of 2.7 or higher in all course work by the end of the Stage 2.

Stage 3 Middle/Secondary Education - Practicum

1. Upon satisfactory completion of Stage 2 requirements, the student is eligible to apply for formal admission into the Practicum in Teaching: Secondary School or Practicum in Teaching: Middle School.
2. Students must have attained senior standing to student teach.
3. This application will be reviewed by the Educational Standards Review Committee.
4. Students convicted of a felony may be denied admission to student teaching.

Admission to the program does not guarantee student teaching eligibility.

The Department of Education offers provisional programs in the following areas in cooperation with liberal arts and sciences departments.

Teacher of English	(5–9) (9–12)
Teacher of History	(5–9) (9–12)
Teacher of Social Studies	(5–9) (9–12)
Teacher of Mathematics	(5–9) (9–12)
Teacher of General Science	(5–9) (9–12)
Teacher of Physics	(5–9) (9–12)
Teacher of Chemistry	(5–9) (9–12)
Teacher of Biology	(5–9) (9–12)
Teacher of Earth Science	(5–9) (9–12)
Teacher of Health Education	(5–12)

For required courses in these areas students should consult their liberal arts/science advisor.

Secondary Pre-practicum: 15 credits

ED 251	Foundations of Education
ED 270	Diversity and Multicultural Education
ED 351	Principles of Curriculum & Evaluation in the Secondary School
ED 353	Effective Teaching in the Secondary School
ED 424	Seminar: Teaching Practicum

Secondary Practicum: 9 credits

ED 480	Practicum in Teaching

Graduate Programs

The Department offers graduate programs leading to standard certification in the areas of Early Childhood, Elementary, Middle and Secondary Education. At the time of this catalog's publication, these programs were in the process of being approved. Please contact the Graduate Office at Worcester State College (508) 793-8125 for further information.

Education Courses (Undergraduate)

ED 155 Teaching & Learning in Elementary School

Overview of the teaching profession, examination of a variety of learning environments, organizing and managing schools, integrating curricula, observational techniques.
Category 1. 3 credits.

ED 160 Early Childhood Education Today

Exploration of early childhood education emphasizing developmentally appropriate creativities, motor skills. Discussion: families, community resources, play, integration of special needs.
Category 1. 3 credits.

ED 206 Young Children, Learning and Special Needs

Prerequisites: PS 210, ED 160

Children's learning will be analyzed, focusing on special education, typical and atypical conditions for learning - birth through age eight.
Category 1. 3 credits.

ED 211 Curriculum and Evaluation in Early Childhood Education

Prerequisites: ED 160, ED 206, PS 210

Designing and evaluating multidisciplinary curricula for all children, materials,organizing environments, regulations, learning theories, evaluation of children's learning and development.
Category 1. 3 credits.

ED 250 Educational Psychology

Prerequisites: PS 210 and ED 155

Learning and developmental processes of typical and atypical learners. Motivation, relationships of intelligence, affect, and achievement. Application to teaching and learning.
Category 1. 3 credits.

ED 251 Foundations of Education

Prerequisite: PS 215

Critical examination of social, psychological, and philosophical factors which underlie educational thought and practices in America, noting relevant historical antecedents.
Category 1. 3 credits.

ED 253 History and Philosophy of Education

Contemporary problems of education in relation to selected ancient, medieval, and modern philosophers of education.
Category 1. 3 credits.

ED 260 Using Computers in Early Childhood/Elementary Education

Course treats LOGO, LOGO WRITER, identification/evaluation of ECE/Elementary educational software, educational computer issues, word processing for children, curriculum integration.
Category 1. 3 credits.

ED 270 Diversity and Multicultural Education

Prerequisites: PS 215 and ED 251

Analysis of goals, values and practices in educating culturally diverse populations. Includes bilingual, special needs and gifted students.
Category: 1. 3 credits.

ED 275 Curriculum & Instruction in Elementary Education

Prerequisites: ED 155, ED 250, PS 210

Analysis of interactions in effective elementary schools through participation in and exploration of curriculum, teaching and learning roles. Field experience.
Category 1. 3 credits.

ED 285 Introduction to Children with Special Needs

Prerequisite: PS 210

Special needs (learning disabilities); designed to orient prospective teachers with the problems of children with special needs.
Category 3. 3 credits.

ED 286 Identification of the Preschool Child with Special Needs

Prerequisite: PS 210

The development of skills applicable to the process of identifying children with special needs.
Category 3. 3 credits.

ED 300 ECE: Multiculturalism and Social Studies

Prerequisites: ED 160, ED 206, ED 211, PS 210

Explores the nature of multiculturalism and its impact on children, schools and communities. Study of content, materials and instructional strategies in social studies.
Category 1. 3 credits.

ED 301 ECE: Math and Science

Prerequisites: ED 160, ED 206, ED 211, PS 210

Focus on early mathematical education and an inquiry-based science program for young children in an integrated curriculum.

ED 302 Educational Measurement and Evaluation

Prerequisites: ED 250, ED 275

Study, construction, and evaluation of instruments in education; interpretation of data; criteria for selection and evaluation of behavioral objectives and standardized tests.
Category 1. 3 credits.

ED 303 Urban Education

Prerequisite: ED 155

Study, construction, and evaluation of instruments in education, interpretation of data, criteria for selection and evaluation of behavioral objectives and standardized tests.

ED 308 Early Childhood Education - Math

Prerequisites: ED l60, ED 206

Focus on Piaget's early mathematical theory. Techniques include teaching premath skills, logical mathematical knowledge, formal math using developmentally appropriate materials.
Category l. 3 credits.

ED 309 Early Childhood Education - Science

Prerequisites: ED l60, ED 206

Teaching strategies that focus upon exploration, discovery, problem solving, experimentation, Piagetian theory. Addresses nationally recognized science education curricula guidelines.
Category l. 3 credits.

ED 313 Field Experience in Early Childhood Education

Prerequisites: ED 160, ED 206, ED 211, PS 210
Corequisites: ED 300, ED 301, ED 317

Semester long teaching experience in a licensed group day care center (12-15 hours/week). Students apply course content, methods, materials.
Category 1. 3 credits.

ED 316 Administration and Supervision of Programs in Early Childhood Education

Prerequisites: ED 308, ED 309, ED 317

Administrative and supervisory strategies used in programs in early childhood education.
Category 3. 3 credits.

ED 317 ECE: Early Literacy, Children's Literature, Language Arts

Prerequisites: ED 160, ED 206, ED 211, ME 110, PS 210

Content, curriculum, materials, approaches to early literacy for all children. Includes whole language, comprehension, progress writing, beginning reading, integrated literature.
Category 1. 6 credits.

ED 319 Advanced Field Experience in Early Childhood Education

Prerequisite: ED 313

Multidisciplinary teaching experience in licensed group day care center/ public school/kindergarten. Emphasis on reflection, analysis, integration of curriculum. Seminar.
Category 1. 3 credits.

ED 320 Elementary Science

Prerequisites: ED 155, ED 250

Thematically taught emphasizing engaging hands-on activities, constructivism, cooperative learning, authentic assessment, integrated curriculum, and relationships between Science, Math and Technology.
Category 1. 3 credits.

ED 325 Elementary Math

Prerequisites: ED 250

Mathematics in elementary school. Emphasizes curriculum theory, material development, and evaluation of materials/techniques.
Category 1. 3 credits.

ED 330 Elementary Social Studies and Multiculturalism

Prerequisites: ED 155, ED 250

Goals, curriculum, skills, issues, teaching strategies in educating culturally diverse population in a global context.
Category I. 3 credits.

ED 340 Elementary Language Arts and Literature

Prerequisites: ED 250

Investigates the interrelationships of oral/written communication and literature. Analyzes curriculum and plans instructional activities for developing language facility.
Category 1. 3 credits.

ED 345 Elementary Reading

Prerequisites: ED 250

Curriculum, skills and instructional procedures of the 1-6 reading program. Includes approaches to teaching beginning reading, comprehension, and assessing reading ability.
Category 1. 3 credits.

ED 348 Children's Literature

Prerequisites: ED 155, ED 250, ED 275

Various genre of literature for elementary pupils explored, criteria for appropriate selections, techniques of preparation, use in classrooms.
Category 3. 3 credits.

ED 351 Principles of Curriculum and Evaluation in the Secondary School

Prerequisites: ED 270

Basic considerations in curriculum planning and implementation are examined. The role of evaluation is emphasized.
Category 1. 3 credits.

ED 352 Principles of Curriculum and Evaluation in the Middle School

Prerequisites: ED 270

Examines factors in curriculum planning and implementation in terms of the uniqueness of the middle school. Evaluation models are presented.
Category 1. 3 credits.

ED 353 Effective Teaching in the Secondary School

Prerequisite: ED 270
Corequisite: ED 351

Considers teaching techniques in various disciplines using a variety of instructional strategies and teaching aids. Analyzes effective classroom management.
Category 1. 3 credits.

ED 354 Effective Teaching in the Middle School

Prerequisite: ED 270
Corequisite: ED 352

Considers a variety of instructional designs including team teaching, horizontally integrated curriculum, and effective classroom management.
Category 1. 3 credits.

ED 372 Using Computers in the Secondary Classroom

Review and evaluate secondary courseware and develop courseware. Includes overview of LOGO, LOGO WRITER, word processing, classroom management software, curriculum integration and educational computer issues.
Category 3. 3 credits.

ED 380 Diagnostic and Remedial Techniques in Reading for the Regular Classroom

Prerequisite: ED 310 or ED 336

Evaluation instruments and procedures; techniques for removing deficits; tutoring disabled readers; writing a case report.
Category 2. 3 credits.

ED 400 Integrated Early Childhood Education

Prerequisites: ED 300, ED 301, ED 317
Corequisite: ED 430

Learning patterns of young children with special needs contrasted with standard educational progress. Includes assessment, remediation, prescriptive techniques, classroom management.
Category 1. 3 credits.

ED 410 Special Topics

Prerequisite: ED 155 or equivalent

A seminar course on current issues or topics in education.
Category 2. 3 credits.

ED 424 Seminar: Teaching Practicum

Corequisite: ED 480 or ED 485

Implications of the attempts to juxtapose theory and practice are analyzed from the viewpoint of becoming professional teacher.
Category 1. 3 credits.

ED 425 Seminar: Applying Educational Principles

Prerequisites: ED 320, ED 325, ED 340, ED 345
Corequisite: ED 435

Guided analyses and application of principles and procedures for students completing their practicum.
Category 1. 3 credits.

ED 430 Student Teaching in Early Childhood Education

Prerequisites: ED 300, ED 301, ED 317
Corequisite: ED 400

Semester-long teaching experience at preschool and K-3 levels, involving planning, implementing and evaluating learning. One setting integrates special needs children.
Category 1. 9 credits.

ED 435 Student Teaching in the Elementary School

Prerequisites: ED 320, ED 325, ED 340, ED 345
Corequisite: ED 425

Actual teaching in a local school: principles, techniques, and responsibility of planning, executing, and evaluating teaching and learning.
Category 1. 9 credits.

ED 450 Independent Study in Education

Prerequisite: Consent of Instructor

For the student who wishes to pursue independent study in education; faculty members from other disciplines may be called upon to counsel student.
Category 1. 1-6 credits.

ED 475 Practicum in Teaching

Prerequisite: Completion of required education courses including the appropriate course in methods and media. For the secondary education student; practice in teaching in the secondary school.

Category 1. 6 or 12 credits.

ED 480 Practicum in Teaching Secondary School

Prerequisites: ED 351 and ED 353
Corequisite: ED 424

Full semester teaching experience in a secondary school. Includes planning, teaching, and evaluating learning experiences.
Category 1. 9 credits.

ED 485 Practicum in Teaching Middle School

Prerequisites: ED 352 and ED 354
Corequisite: ED 424

Full semester teaching experience in a middle school. Includes planning, teaching and evaluating learning experiences.
Category 1. 9 credits.

Education Courses (Graduate)

EA 920 School Business Management and Administration

Studies the interaction between school management services and the total educational organization and its environment.
3 credits.

EA 921 Fundamentals of School Finance

Considers the financial support and the allocation of resources in public education.
3 credits.

EA 922 Public School Administration

Historical, philosophical, and sociological study of American school administration with major emphasis on the function, duties, and responsibilities of the school administrator.
3 credits.

EA 923 Law for the Administrator

An in-depth investigation of specific school laws and how they relate to the administration of a modern school system.
3 credits.

EA 924 Curriculum Development Seminar for Administrators

A seminar course in curriculum theory, constructs, and hypotheses.
3 credits.

EA 925 Staff Development: Theory and Practice

Theories and methods of staff development and in-service education for program aims and personnel. Action research in individual areas of involvement.
3 credits.

EA 927 School Plant and Development

A practical investigation of the planning, developing and implementing of renovations, or construction of new facilities. Topics include evaluating public relations and the community, hiring an architect, warrants and bonds, building and developing facilities.
3 credits.

EA 928 Practicum in Educational Administration

A 150-clock-hour practicum in an area of educational administration.
3 or 6 credits.

EA 929 Special Problems in School Administration

A field-based experience designed around a special problem in administration of a school system.
3 credits.

EA 930 Internship in Educational Administration

A 300-clock-hour internship in an area of educational administration.
6 credits.

EA 931 Administration of Programs for Children with Special Needs

The implications of legislation for administrators who are responsible for implementing these programs.
3 credits.

EA 932 Educational Personnel Administration

Study of the policies and problems associated with the selection, assignment, orientation, in-service programs, evaluations, promotion, and retention of the professional and nonprofessional staff of a school system.
3 credits.

EA 933 Collective Bargaining Strategies

A survey of the basic designs, strategies, and mechanisms used in preparing collective bargaining packages, counter proposals, and final proposals.
3 credits.

EA 939 Action Research Project I
EA 940 Action Research Project II

A two-semester course during which students will enroll for two consecutive semesters. During the two semesters students will meet both in large groups and individually in developing their action research projects.
3 credits per semester.

ED 900 Computers in Education

Introduction to the uses of computers in education. Includes overview of microcomputer operation, LOGO, word processing, file management, and courseware evaluation.
3 credits.

ED 911 Foundations of Reading

Prerequisite: A previous course in reading

Reading growth examined in terms of learning modalities, current research, and effective practice.
3 credits.

ED 912 Psychology in Teaching Reading

Provides an understanding of the psychological bases of the reading process; applies the theories of the psychologist to classroom situations.
3 credits.

ED 913 Diagnosis of Reading Disabilities

Student identifies and assesses reading disabilities through the administration of reading tests. Field-based experience included.
3 credits.

ED 914 Teaching Reading in the Content Areas

Presents meaningful theory and related teaching strategies to aid pupils in reading and learning from their content-area textbooks.
3 credits.

ED 915 Seminar in the Administration and Supervision of Reading Programs

Examines and evaluates programs with attention to current theories, developmental, and remedial aspects, staff development and laws pertaining to special needs.
3 credits.

ED 916 Literature in the Classroom

Introduces a balanced selection of literature and broadens the student's acquaintance with the exciting world of books from kindergarten through high school.
3 credits.

ED 917 Remediation of Reading Disabilities

Prerequisite: ED 913

Materials and strategies for remediation. Student prepares and implements corrective programs of instruction. Field-based experience included.
3 credits.

ED 918 Linguistics and Language Acquisitions for the Reading Teacher

Presents the history of the English language, phonology, morphology, syntax, semantics, and language variations, nonverbal communication, language acquisition in relation to elementary reading.
3 credits.

ED 919 Laboratory Practicum in Reading

Candidate plans and executes a total remedial reading program in supervised field-based experiences of 150 clock hours.
3 or 6 credits.

ED 921 Developmental Patterns of Children with Special Needs

Basic understanding of the child with special needs, including the characteristic psychological, educational and sociological impact of developmental deviations.
3 credits.

ED 922 Analysis and Interpretation of Children's Behavior and Learning Environment

Evaluation procedures used to assess academic, cognitive, affective, and behavioral functioning of the child. Formal and informal techniques for evaluating the effectiveness of instruction will be examined.
3 credits.

ED 923 Development and Implementation of an Individualized Educational Plan

Considers federal and state laws regulating the development and implementation of individualized educational plans.
3 credits.

ED 924 Program Development and Evaluation

Examination of current and proposed organizational plans for the delivery of services; application of research findings to curriculum effectiveness; program evaluation in terms of meeting the individual needs within the total school structure.
3 credits.

ED 925 Consulting and Interpersonal Skills

Focuses on the theories and techniques of consultation.
3 credits.

ED 926 Curriculum Development and Instructional Techniques

Principles of curriculum development and the use of instructional techniques for special needs students. Some field work.
3 credits.

ED 927 Classroom Management Techniques

Discussion of the basic principles and procedures for behavior management and modification and their implementation in a school setting; includes treatment design as related to IEP development.
3 credits.

ED 928 Practicum for the Moderate Special Needs Teacher

A field-based experience in which the student demonstrates competencies in the delivery of direct services: assessment procedures, educational planning, classroom management, curriculum development, and in-service education.
3 or 6 credits.

ED 929 Group Psychological Testing

Principles of psychological testing will be presented with emphasis placed on the role of the counselor and school psychologist in selection and interpretation of individual and group psychological tests. Required for all students matriculated in the counselor training program.
3 credits.

ED 930 Theories of Counseling

Fundamental techniques and theories of counseling. Students will examine various theories of counseling and through the use of role-playing develop basic techniques in counseling.
3 credits.

ED 931 Psychological Counseling Strategies

Developmental and Gestalt insight approaches, as well as behavioral approaches to counseling, will be analyzed for their effectiveness with a variety of psychological problems.
3 credits.

ED 932 Counseling the Alcoholic and Drug Abuser

A study of alcohol and other drug abuse (physiological and psychological). Various treatment modalities will be examined.
3 credits.

ED 933 Vocational Counseling Strategies

Techniques involved in developing self-awareness, values, psychological needs and drives as well as the influence of the environment in earlier development.
3 credits.

ED 934 Counseling Students with Special Needs

The special-need student. The role of a counselor and the role of Chapter 766. Facilities available to special needs students outside the school setting.
3 credits.

ED 935 Vocational Development and Occupational Information

The ways in which individuals make decisions concerning their choice of vocations; types of information and data which are needed to aid people with these decisions.
3 credits.

ED 936 Counseling the Adolescent

Designed for students preparing to counsel adolescents. Focuses on adolescent patterns of development and the behaviors associated with them. Typical adolescent crises will be explored with specific strategies to deal with them.
3 credits.

ED 937 Group Counseling I

Theories, methodology, and content of group standardized test devices; case study procedures.
3 credits.

ED 938 Group Counseling II

Prerequisite: ED 937

Focuses on selected readings and provides an opportunity for students to develop their skills as facilitators or leaders by demonstration, practice, and group feedback.
3 credits.

ED 939 Individual Intelligence Appraisal (WAIS-WISC)

Prerequisite: Introductory course in measurement

Study of two major Wechsler tests, Wechsler Adult Intelligence Scale (WAIS), and the Wechsler Intelligence Scale for Children (WISC). Includes administration and interpretation of both of these scales.
3 credits.

ED 940 Individual Intelligence Appraisal (Binet)

Prerequisite: Introductory course in measurement

Study of the origin and use of Stanford-Binet intelligence tests. Students will learn how to administer, score, and interpret the 1960 revision of the Binet.
3 credits.

ED 941 Counseling the Elementary School Child

Investigates the various age-related problems found in the elementary school age child of today. Various counseling strategies to deal with these problems will be explored.
3 credits.

ED 942 Family and Parent Counseling

An understanding of the family system theory. Students will develop skills and counseling strategies relating to family and parent counseling.
3 credits.

ED 943 Advanced Psychological Testing

Survey of tests and testing procedures, evaluating personality variables. Objective and projective measures of personality will be studied, stressing use in nonclinical settings.
3 credits.

ED 944 Organization and Administration of Guidance

Latest procedures, techniques, and problems in guidance programs. Analysis and discussion of unusual homeroom, community group, and individual guidance problems will be stressed.
3 credits.

ED 945 Practicum in Counseling

Designed to give advanced graduate students an opportunity to put into practice the various theoretical aspects of academic counseling and guidance.
3 or 6 credits.

ED 948 Internship in Counseling

Prerequisite: Limited to advanced graduate students

Students will work in a counseling center under supervision and obtain experience in the day-to-day operations of a school or agency center. Actual counseling will be included.
3 credits.

ED 960 Educational Law

An in-depth investigation of specific school laws and how they relate to the role of the teacher and administrator.
3 credits.

ED 961 Educational Supervision and Evaluation

Designed to develop competency in the supervision and evaluation of teachers.
3 credits.

ED 963 The Understanding and Teaching of Culture

Approaches to cultural analysis and survey of techniques used to teach culture in the classroom.
3 credits.

ED 964 Current Issues in Education

Emphasis will be placed on problem solving and case study approaches.
3 credits.

ED 965 Principles of Curriculum Development

Aspects of curriculum development, society, culture, learning theories, taxonomies of educational objectives, structure, hierarchy, balance, politics, strategy for change.
3 credits.

ED 967 Theories of Instruction

Historical, philosophical, and psychological foundations of various theories of instruction.
3 credits.

ED 968 Seminar in Curriculum and Instruction

Prerequisites: ED 965, ED 966, ED 967

Discussion and evaluation of curriculum and instruction as applied to a real or theoretical construct.
3 credits.

ED 970 Workshop for Educators

Specialized workshop experiences structured to enhance teacher abilities to implement new educational practices.
3 credits.

ED 971 Special Topics

In-depth exploration of contemporary educational topics or issues.
3 credits.

ED 980 Independent Study in Education

An opportunity for further study in a special field of interest under faculty supervision.
3 credits.

ED 996 Research and Evaluation

Research and evaluation methods and designs; includes gathering and analyzing data, writing research, and making evaluation reports.
3 credits.

ED 997 Advanced Philosophical Foundations of Education

Examines the basic principles of some major philosophers and demonstrates their effect on contemporary educational theories in the western tradition.
3 credits.

ED 998 Advanced Psychological Foundations of Education

Analysis of major schools of psychology with attention to contemporary issues. Role of the educator in the learning process and application of psychological principles to specific classroom situations.
3 credits.

ED 999 Internship in Education

A 300-clock-hour internship in an area of professional education.
3, 6, or12 credits.

EE 900 Literature for Young Children

Survey of quality literature appropriate for early childhood, development of programs in literature and effective storytelling procedures.
3 credits.

EE 901 Curriculum for Early Childhood Education

Studies the components of designing a curriculum for young children including content and organization of program, facilities and arrangement of space, staffing, evaluation, and parent and community relationships.
3 credits.

EE 902 Methods and Materials in Early Childhood Education

Focuses on activities designed to enable young children to use their abilities to the fullest.
3 credits.

EE 903 Development of Reading Readiness and Beginning Reading Activities for the Young Child

Development of activities and materials based upon study of the reading readiness skills and of beginning reading approaches.
3 credits.

EE 904 Exploring Science in Early Childhood Education

Study of science within the conceptual ability of the young child.
3 credits.

EE 905 Evaluation and Remediation Techniques of Young Children with Special Needs

Multidisciplinary approach to the evaluation of children with special needs.
3 credits.

EE 906 Practicum in Early Childhood Education

An intensive supervised field experience involving daily interaction with young children of ages three to five.
3 credits.

EE 907 Intellectual Development in Early Childhood Education

Examines the intellectual levels of children based on current research including Piaget and others.
3 credits.

EE 908 Evaluation of the Young Child

Understanding and interpreting the results of psychological and educational tests of preschool age children.
3 credits.

EE 909 Supervision and Administration in Early Childhood Education

Outlines steps for the organization and administration of day care centers, nursery schools, and other programs for young children.
3 credits.

EE 910 The Pre-School Child with Special Needs

Detection, evaluation, and remediation of learning disabilities in young children from three years.
3 credits.

EE 911 Early Literacy for Young Children

This course focuses on the skills and techniques for presenting readiness skills and teaching beginning reading to children.
3 credits.

EE 919 Seminar in Early Childhood Education

Current issues and problems in the field of early childhood education.
3 credits.

EE 920 Independent Research in Early Childhood Education

For students wishing to pursue independent study in a specialized area of early childhood education.
3 credits.

EL 900 The Gifted Child

Methods for identifying the gifted student; characteristics and personal factors of the gifted; techniques and approaches for curriculum development.
3 credits.

EL 902 Newspapers in Education

Newspapers will be explored for their historical aspects, actual composition, freedom of the press, and behind-the-scenes production aspects. Learning activity packets will be developed utilizing newspapers.
3 credits.

EL 903 Theory and Research in the Elementary School Curriculum

Prerequisite: ED 996

Emphasizes ability to recognize, select, and pursue independent action research in one or more areas of the elementary school curriculum.
3 credits.

EL 904 Organization and Administration of the Elementary School

The many facets of elementary school administration and organization; the role of the principal as an administrator in the larger setting of present day education is stressed.
3 credits.

EL 905 Seminar in Current Issues in Elementary Education

Prerequisites: Three graduate level education courses approved by advisor

Symposium approach. Reading, writing, and discussion relevant to major issues.
3 credits.

ES 900 Organization and Administration of Middle and Secondary School

The role of the principal and assistant principal in the administration of the secondary school.
3 credits.

ES 901 Language and Language Teaching

Prerequisite: Completion of at least two secondary education courses

A survey of linguistic theories and derived methodologies relevant to teaching a foreign language. 20 hour field experience included.
3 credits.

ES 902 Learning Skills for Adolescents

Reading, study and communication skill instruction, appropriate for content instruction in middle and high schools. 15 hour field experience.
3 credits.

ES 903 The Art of Teaching Adolescents

Underlying reasons and means for pursuing excellence in teaching middle and high school students; implications for discipline and leadership.
3 credits.

ES 904 Curriculum and Instruction for Adolescents

Developing and matching curriculum to high school students' personal and social needs. 15 hour field experience.
3 credits.

ES 905 Methods and Materials for Teaching Humanities

Prerequisite: Completion of at least two secondary education courses

Techniques and microteaching practice in teaching high school English, social studies and other humanities. 20 hour field experience.
3 credits.

ES 906 Methods and Materials for Teaching Science and Math

Prerequisite: Completion of at least two secondary education courses

Techniques and microteaching practice in teaching high school subject areas in math and the sciences. 20 hour field experience.
3 credits.

ES 907 Individualizing Instruction in the Middle and Secondary School

Examines ways in which teachers may individualize instruction in middle and secondary schools.
3 credits.

ES 908 Secondary Education Project/Seminar

Prerequisite: Completion of 21 credits of MEd concentration in secondary education

Integration of required, core, and elective courses as applied to middle or secondary education, pertinent to teaching situation of participant.
3 credits.

ES 909 Clinical Teaching Workshop

In-service instructional development using videotaped microteaching, peer supervision, and workshop training.
3 credits.

ES 910 Evaluation of Classroom Learning in Middle & Secondary Schools

Rationale and means for formative and summative evaluation, mastery learning, assessing higher order thinking, and improving learning attitudes and performance.
3 credits.

ES 911 Teaching Practicum

Prerequisite: Completion of required education courses; satisfaction of eligibility requirements.

Student teaching for Massachusetts Certification in Middle or High School. Seminar or other approved means for reflection on experience.
6 or12 credits.

ES 912 Curriculum and Instruction in the Middle School

Addresses the unique nature of the middle school curriculum; with a focus on learning centers, mastery learning and learning activity packets.
3 credits.

ES 913 Methods and Materials for Teaching in the Middle School

Focuses on the interdisciplinary nature of instruction in the middle school with particular emphasis placed on the role of team teaching.
3 credits.

ES 914 ESL Methodology

Topics in second language acquisition and applied teaching methodology in teaching English to speakers of other languages.
3 credits.

Health Science

Health Studies

Michael A. Burke, Professor (1969), Department Chair
A.B., College of the Holy Cross; Ed.M., Worcester State College;
M.A.T., Michigan State University; Ph.D., Boston College; CHES

Yvonne Chen, Professor (1977)
B.S., Hong Kong Baptist College; M.Ed., University of Cincinnati;
M.D., Dr. Sun Yat-sen University

Howard E. Munson, Professor (1977)
B.S., Central Connecticut State College; M.S.T., Hartford Seminary Foundation;
Ed.M., Salem State College; Ed.D., University of Massachusetts

Donald A. Read, Professor (1972)
A.B., University of Northern Colorado; M.A., University of Maryland;
Ed.D., Boston University

Heather Robinson, Instructor (l993)
B.A.S., University of Guelph; M.P.H., Boston University

Helena V. Semerjian, Associate Professor (1966)
B.S., Ed.M., Fitchburg State College; Ed.M., Boston University

The Health Science department offers instruction leading to the Bachelor of Science degree in Health Studies with concentrations in health services and health education. Each concentration has been designed to enable students to acquire basic knowledge and skills needed to practice their chosen profession while at the same time obtaining a broad cultural background in the humanities and in the social and natural sciences. An honor society in Health Education, Eta Sigma Gamma, is available to qualified students.

Admission Requirements: Students must have completed two or more health courses with a C or better and submit a formal application.

Required Ancillary Courses: The following courses must be completed with an average of C or better and may be taken concurrently with other major requirements.

BI 161 & BI 161	Human Anatomy and Physiology I and II
CH 110 & CH 111	Introduction to General, Organic & Biochemistry
MA 150	Statistics I
PS 110 & PS 111	General Psychology I and II
SO 100	Introduction to Sociology

Requirements for a Major in Health Studies, Concentration in Health Services: 39 credits

HE 100	Personal Health
HE 110	Drugs and Society
HE 120	Health and Nutrition
HE 200	Consumer Health
HE 310	Group Processing
HE 440	Practicum in Health

Health Electives: 21 credits

Requirements for a Major in Health Studies, Concentration in Health Education: 39 credits

HE 100	Personal Health
HE 110	Drugs and Society
HE 120	Health and Nutrition
HE 200	Consumer Health
HE 230	Human Sexuality and Sex Education
HE 260	First Aid: Advanced Theory and Skill (or First Aid Certification)
ED 480/ED 485	Practicum in Teaching

Required for teacher certification:

BI 112	Diseases and Mankind
HE 220	Mental Health Education
HE 275	Fitness for Life

Required Health Electives: 9 credits
Middle/Secondary Education Minor

Requirements for a Minor: 18 credits.
All students must complete the following:

HE 100	Personal Health
HE 110	Drugs and Society
HE 120	Health and Nutrition
HE 200	Consumer Health

Health Electives: 6 credits

Women's Studies: 15 credits. Health Studies majors may elect an interdisciplinary concentration beyond the 39 credits required for the major. Five courses may be selected from the following:

EN 172	Women and Literature
EN 174	Women Poets
EN 345	Women in American Literature
HE 210	Women's Health Issues
HI 270	Writings on Feminism in Historical Perspective
HI 271	Women and Work in Historical Perspectives
HI 272	Evolution of Women's Rights
HI 273	Ideas of Men and Women in Historical Perspective
PS 263	Psychology of Women

Graduate Program

Master of Education, Concentration in Health Education

The master's program with a concentration in health education is designed to enhance the preparation of generic health educators and teachers at the elementary and secondary school levels. In the event a student enters with preparation equivalent to any of the courses listed below, other courses will be substituted. Students with minimal background in the field may be required to take additional courses as prerequisites. By itself, this program does not fulfill Massachusetts teacher certification requirements in Health.

Admission Requirements: General admission requirements for graduate study.

Requirements of the Program:
Education foundation courses (9 credits)

ED 996	Research and Evaluation]
ED 997	Advanced Philosophical Foundations of Education
ED 998	Advanced Psychological Foundations of Education

Health education courses (15 credits)

HE 917	Creative Teaching in Health
HE 930	Drugs, Alcohol and Tobacco
HE 932	Advanced Nutrition
HE 935	Human Sexuality
HE 945	Seminar in Health

Electives: 9 semester hours of credit in health, selected with the advisor's assistance.

Each candidate must pass a comprehensive examination in health education.

Health Studies (Undergraduate Courses)

HE 100 Personal Health

Physical, mental, and emotional aspects of well-being and how to maintain and increase the quality of one's lifestyle.
Category 1. 3 credits.

HE 110 Drugs and Society

Drug use and abuse, and implications for personal, family, and societal choice.
Category 1. 3 credits.

HE 120 Health and Nutrition

Nutritional needs, weight control, healthy diets, myths, and nutritional aids to better health.
Category 1. 3 credits.

HE 125 Relaxation Techniques

The focus of the course will be on researching and experiencing various Eastern and Western relaxation modalities. Examples include meditation, guided imagery, hatha yoga and biofeedback.
Category 1. 3 credits.

HE 130 Human Sexual Awareness

The processing of feelings of self as a sexual person and applications to individual lifestyles.
Category 1. 3 credits.

HE/PE 140 Introduction to Creative Arts Therapies

An experiential and didactic introduction to the separate arts therapies: movement, art, music, and language arts, emphasizing the creative process.
Category 3. 3 credits.

HE/PE 150 Health and Physical Education for the Teacher

Techniques for teaching health and physical education in elementary school. Curriculum materials, activities are explored. Field experience.
Category 1. 3 credits.

HE 200 Consumer Health

Prerequisite: HE 100

Current information and guidelines to reliable sources necessary to develop intelligent consumers capable of wisely selecting health products and services.
Category 1. 3 credits.

HE 210 Women's Health Issues

Overview of women's health issues: women in the health marketplace, a woman's right to control her body, media images and illness, eating disorders, therapy, alcohol, aging, and the women's health movement.
Category 1. 3 credits.

HE 220 Mental Health Education

Prerequisite: HE 100

Examination of mental health as a variable: its creation and the obstacles to sound mental health and positive self-concept.
Category 2. 3 credits.

HE 230 Human Sexuality and Sex Education

Prerequisites: HE 100, HE 130

Focus on the need for and understanding of sex education, along with the process of implementing sexuality education, with emphasis upon teacher preparation.
Category 3. 3 credits.

HE/PE 260 First Aid: Advanced Theory and Skill

Common emergencies, cardiopulmonary resuscitation, auto extrication, and emergency childbirth. Opportunity for instructor rating.
Category 3. 3 credits.

HE/PE 275 Fitness for Life

Knowledge of health-related fitness components and their effect on total wellness; emphasis on developing personalized fitness program, namely cardiovascular endurance.
Category 1. 3 credits.

HE/PE 280 Individualized Stress Management and Relaxation

Knowledge of the causes, symptoms, and related disorders of stress; emphasis on techniques of stress reduction through meditation, exercise, etc.
Category 1. 3 credits.

HE 300 Values Clarification

Prerequisite: HE 100

Examination of values which guide our health/wellness decisions and behaviors.
Category 3. 3 credits.

HE 310 Group Processing

Prerequisite: HE 100

Consideration of the process of dynamics forming the emotional, relational, and other components of health-producing group behavior.
Category 3. 3 credits.

HE 320 Aging and Death

Prerequisite: HE 100

Health implications revealed as psychological and social surrounding the phenomena of aging and death.
Category 2. 3 credits.

HE 340 Health Counseling

Prerequisites: HE 100, HE 130, HE 310

A study of the counseling implications involved in health. Awareness of the counseling process and referral.
Category 2. 3 credits.

HE 350 Community Health Education

Prerequisite: Advanced standing

Opportunity for exploration of on-going community health education programs and their impact upon that community.
Category 3. 3 credits.

HE 360 Strength Training

Prerequisite: Advanced standing

Identification of strengths and weaknesses in teaching and interpersonal relationships.
Category 3. 3 credits.

HE 370 Critical Issues in Health

Prerequisite: Advanced standing

An examination of the most current critical issues in health.
Category 3. 3 credits.

HE 380 Teaching Methods and Skills in Health

Prerequisite: Advanced standing.

Focus on the role and responsibility of the classroom teacher as a major force in the creative teaching- learning environment.
Category 3. 3 credits.

HE 390 Environmental Health

Prerequisite: HE 100

Nature and effects of health hazards including radiation, noise, pollutants (air, water), food, housing, accidents, etc.
Category 3. 3 credits.

HE 400 Departmental Workshop

Prerequisite: Consent of instructor

An eclectic course that will bring to the department the most important issues that relate to health and health care.
Category 2. 3 credits.

HE 440 Practicum in Health

Prerequisite: Advanced standing

A field experience option required of all health majors.
Category 1. 3 credits.

HE 450 Independent Study in Health

Prerequisite: Advanced standing

Creative, independent learning experiences designed and initiated by health majors.
Category 1. 1-6 credits.

Health Studies (Graduate Courses)

HE 910 Health Coordinator

Investigation of the skills necessary in developing, implementing, and coordinating a school health education program.
3 credits.

HE 917 Creative Teaching in Health

Emphasis placed on creative aspects of teaching with a focus on values education: transpersonal education and affective education.
3 credits.

HE 918 Curriculum Development in Health

Exploration of planning models and their integration with theories of health behavior and education.
3 credits.

HE 920 Strength Training in Health

Workshop to help participants learn to cope constructively with stressful situations commonly experienced in helping relationships.
3 credits.

HE 922 Health Care Systems

A study of historical development of the American health care system and recent trends in organization, administration, and legislation.
3 credits.

HE 923 Education and Training in Health Care

Provides an historical, philosophical and theoretical background to adult learning and health education.
3 credits.

HE 924 Education for Wellness

Utilizing preventive and holistic measures to reduce stress and illness. Focuses on alternative approaches to wellness.
3 credits.

HE 925 Politics and Policies of Health Care

Health care regulation and cost by government including the transition from private and professional to federal and state control.
3 credits.

HE 930 Drugs, Alcohol, and Tobacco

The pharmacology of various drugs and their physiological effects.
3 credits.

HE 932 Advanced Nutrition

Study of recent advances and trends in the relationship of diet and nutrition.
3 credits.

HE 935 Human Sexuality

Historical, political, multicultural and personal approaches to understanding various aspects of human sexuality.
3 credits.

HE 936 Women's Sexuality Issues

The history and politics of issues affecting women's sexual health: prostitution, infertility, contraceptive health risks, sexual violence and reproductive rights.
3 credits.

HE 937 Women and Minority Health Issues

An examination of the effects of sexism and racism on the health and health care of women and minorities.
3 credits.

HE 940 Epidemiology

Classic epidemics, evaluation of epidemiological principles and techniques of investigation, and epidemiological analysis of selected types of diseases.
3 credits.

HE 942 Research Methods in Health

An introduction to research and statistical designs as directly related to health science and allied health disciplines.
3 credits.

HE 943 Current Literature in Health

Critical analysis of current and past research findings concerning health knowledge, attitudes, behaviors and educational techniques.
3 credits.

HE 944 Special Topics in Health

An in-depth exploration of contemporary health topics and issues.
3 credits.

HE 945 Seminar in Health

Current health and social problems emphasizing controversial issues of the present; analyzing ethical, scientific and political foundations.
3 credits.

HE 950 Independent Study in Health

Open to graduate students in Health who wish to develop an independent research project.
3 credits.

Physical Education

Margaret M. Nugent, Associate Professor (1964)
B.S., Russell Sage College; Ed.M., Worcester State College; C.A.G.S., Boston University

The physical education program offers students participation in individual and team activities designed to develop skill, fitness and knowledge to meet immediate and life-long needs and interests.

Physical Education Courses

PE 100 Physical Education Activity Courses

Activities include archery, basketball, candlepin bowling, low- and high-impact aerobics, fitness and weight control, football, golf, racquetball, relaxation, sailing, softball, tennis, volleyball, weight training, yoga and health fitness.
Category 1. 1 credit.

PE/HE 140 Introduction to Creative Arts Therapies

An experiential and didactic introduction to the separate arts therapies: movement, art, music, and language arts emphasizing the creative process.
Category 3. 3 credits.

PE/HE 150 Health and Physical Education for the Teacher

Techniques for teaching health and physical education in elementary school. Curriculum materials, activities are explored. Field experience.
Category 1. 3 credits.

PE 175 Principles of Coaching

The values, relationships, and skills necessary to coach children and young adults in competitive athletics.
Category 2. 3 credits.

PE 190 Sport and Society

Analysis of sport as a social system; the implications of sport within interrelational contexts of other social systems.
Category 2. 3 credits.

PE 205 Coaching Team Sports for Men

The techniques and strategies of coaching basketball and baseball.
Category 2. 3 credits.

PE 215 Coaching Tennis

Selecting, training, strategy and teaching techniques in developing a tennis program.
Category 1. 3 credits.

PE 225 Fundamentals of Athletic Training

The prevention and treatment of all types of athletic injuries. Anatomy, injury recognition, physiology, and taping are included.
Category 2. 3 credits.

PE 230 Mechanical Analysis of Motor Activities

Emphasis on proper utilization of scientific principles; laws of physics, motion, mathematics, psychology, and physiology as applied to specific sports.
Category 2. 3 credits.

PE 235 Intramural Athletics

Planning and implementing intramurals in schools, selecting teams, organizing tournaments, scheduling, officiating, financing, and promoting the program.
Category 2. 3 credits.

PE 240 Athletic Programs

Financing, scheduling, administering, game administration and evaluating boys' and girls' sports in high school.
Category 1. 3 credits.

PE 245 Recreational Programs

Planning, promoting, conducting, financing, and evaluating sports, social, cultural, and special events in public and private recreation programs.
Category 1. 3 credits.

PE/HE 260 First Aid: Advanced Theory and Skill

Common emergencies, cardiopulmonary resuscitation, auto extrication, and emergency childbirth. Opportunity for instructor rating.
Category 3. 3 credits.

PE/HE 275 Fitness for Life

Knowledge of health-related fitness components and their effect on total wellness; emphasis on developing personalized fitness programs, namely cardiovascular endurance.
Category 1. 3 credits.

PE/HE 280 Individualized Stress Management and Relaxation

Knowledge of the causes, symptoms and related disorders of stress; emphasis on techniques of stress reduction through meditation, exercises, etc.
Category 1. 3 credits.

PE 300 Fitness Appraisal and Exercise Prescription

Prerequisites: BI 161, BI 162, PE 275

Administration and interpretation of health-fitness tests, formulation of individualized exercise prescriptions and methods of teaching fitness programs.
Category 1. 3 credits.

PE 400 Independent Study in Physical Education/Coaching

Prerequisite: Consent of department

Opportunity to engage in research in an area of special interest not covered in elective course offerings.
Category 1. 1 - 6 credits.

PE 410 Field Experience in Physical Education/Coaching

Prerequisite: Consent of department

An 80 hour directed experience in organizing and conducting either physical education or coaching activities at the elementary or secondary level.
Category 1. 2 credits.

PE 420 Practicum in Health Fitness

Prerequisite: Consent of department

Opportunity to gain practical experience under supervision in a health fitness field placement.
Category 1. 3 credits.

History and Political Science

Bruce S. Cohen, Associate Professor (1965)
A.B., M.A., Rutgers University

Philip S. Dalton, Associate Professor (1966)
A.B., A.M., Boston College; A.M., Rutgers University

Clement S. Delaney, Associate Professor (1965)
A.B., M.A., St. Michael's College

Vivian C. Fox, Professor (1969)
A.B., Brooklyn College; A.M., Ph.D., Boston University

Bernard Goldsmith, Associate Professor (1963)
A.B., University of Michigan; M.A., Clark University

Robert G. Kane, Associate Professor (1968), Department Chair
A.B., College of the Holy Cross; Ed.M., Worcester State College;
M.A., Assumption College

Frank S. Minasian, Associate Professor (1968)
A.B., Clark University; M.A.T., Assumption College

A. Gibbs Mitchell, Professor (1968)
B.S., Central Connecticut State College; M.A., Ph.D., Boston University

Najib E. Saliba, Professor (1971)
A.B., Miami University; M.A., Ph.D., University of Michigan

Emmett A. Shea, Professor (1962)
B.S., Ed.M., M.A., Boston University; M.A., Boston College

Robert M. Spector, Professor (1963)
A.B., Ed.M., M.A., Ph.D., Boston University; J.D., Boston College

David J. Twiss, Associate Professor (1968)
B.S., Ed.M., Worcester State College; M.A., Assumption College

Cheng Yuan, Professor (1963)
A.B., Colgate University; M.A., Yale University; M.A., Harvard University;
Ph.D., Brown University

The purpose of the discipline is to provide students with extensive course offerings to enable them to cope with a complex and ever-shrinking world. The study of history and political science also provides students with a broad background for a wide variety of professional occupational opportunities. Within the History major are concentrations in American Studies, Foreign Service and Labor Studies-Labor Relations. The discipline also offers a minor in Middle East Studies, a pre-law program, an honors curriculum, and a cooperative research course with the American antiquarian Society. Phi Alpha Theta, the national history honor society, is available to distinguished History majors even if they are not in the honors curriculum.

Requirements for a Major: 36 credits including:
HI 101 & HI 102 Western Civilization I & II
HI 111 & HI 112 US History I & II
US History electives: 6 credits
European History electives: 6 credits
Non-US, non-European History electives: 6 credits
Other electives in history: 6 credits

Requirements for a Major in History, Concentration in Foreign Service: Programs are individually planned with the student's advisor and prepare individuals for careers in the State Department and the intelligence community. In addition to required courses, students will be encouraged to elect courses in the areas of economics, languages, management, geography, and related fields.

Requirements for a Major in History, Concentration in American Studies: Juniors and seniors have the opportunity for independent study and off-campus internships. Students may work as interns in historic museums, historic restorations, historic libraries, archives, or in any one of a great variety of agencies in state, county, and local government. The program also offers internships and independent study opportunities with private sector agencies which have a public interest. The student will also be able to complete the requirements for the history major and the political science minor.

Requirements for a Major in History, Concentration in Labor Studies-Labor Relations: This program permits majors in Business Administration, Economics, and History an opportunity to take a multi-disciplinary concentration on labor-related courses in their respective fields and two other disciplines. With this preparation, students might consider career possibilities in labor relations in industry, government, labor organizations, and academia; and undertake graduate study (master's level) that would lead to such careers. Recommended sequences in each discipline are selected in consultation with program coordinators in each field.

Women's Studies: 15 credits. History majors may elect an interdisciplinary concentration beyond the 36 credits required for the major. Five courses may be selected from the following:

EN 172	Women and Literature
EN 174	Women Poets
EN 345	Women in American Literature
HE 210	Women's Health Issues
HI 270	Writings on Feminism in Historical Perspective
HI 271	Women and Work in Historical Perspective
HI 272	Evolution of Women's Rights
HI 273	Ideas of Men and Women in Historical Perspective
PS 263	Psychology of Women

Requirements for a Minor in History: 18 credits

HI 101 & HI 102	Western Civilization I & II
HI 111 & HI 112	US History I & II

History electives: 6 credits

Requirements for a Minor in Political Science: 18 credits

PO 101	Principles of Political Science

Political Science electives:15 credits

Requirements for a Minor in Middle East Studies: 18 credits

HI 261	Middle East History I
HI 314	Twentieth Century Middle East History

12 credits recommended by advisor

Honors Curriculum: This program is open to qualified majors (juniors and seniors) who display outstanding abilities in historical studies in their first two years and are interested in pursuing a deeper and broader knowledge of the subject.

Pre-Law Program: As a special preparation for law school, a minimum of 12 credits in constitutional history and a minimum of 15 credits in political science are required. In addition to the core program, the student may select the remainder of the required hours for the degree from a wide variety of subjects.

Graduate Program

Master of Education, Concentration in History

Admission Requirements: General admission requirements for graduate study together with 18 credits in history including the following courses or their equivalents:

HI 101 & HI 102	Western Civilization I & II
HI 111 & HI 112	US History I & II

Requirements of the Program:

ED 996	Research and Evaluation
ED 997	Advanced Philosophical Foundations of Education
ED 998	Advanced Psychological Foundations of Education
HI 910	The Study and Writing of History

US History elective: 3 credits
Non-US History elective: 3 credits
Non-US, non-European History elective: 3 credits

Additional History electives: 6 credits approved by the student's guidance committee

Additional courses in education: 6 credits with the approval of the student's guidance committee

Each candidate must successfully complete a written comprehensive examination in history.

History Courses (Undergraduate)

HI 101 Western Civilization I

From the ancient civilizations to 1648. A study of Western development and tradition in that time period.
Category 1. 3 credits.

HI 102 Western Civilization II

From 1648 to recent times. A study of Western development and tradition in that time period.
Category 1. 3 credits.

HI 111 US History I

From colonization through the Civil War era. A study of politics, society, economy, diplomacy, and culture in that period.
Category 1. 3 credits.

HI 112 US History II

From the Civil War era to recent times. A study of politics, society, economy, diplomacy, and culture in that period.
Category 1. 3 credits.

HI 200 Colonial History I

Prerequisites: HI 111, HI 112

European background and reasons for American colonization, intercolonial rivalries, formation of the 17th century English colonies. British colonial policy to 1689.
Category 2. 3 credits.

HI 201 Colonial History II

Prerequisites: HI 111, HI 112

Establishment of Georgia, French and Indian Wars, 18th century colonial civilization, causes of the American Revolution, the Revolution to 1783.
Category 2. 3 credits.

HI 205 American Indian: Past and Present

The American Indian in history, the encounter between Indian and European civilizations, and the relationship of Indian culture to Indian history.
Category 2. 3 credits.

HI 206 A History of Warfare

An examination of the role of war in conflict resolution, great battles which changed history, and the impact of technology on war.
Category 2. 3 credits.

HI 207 American West: Myth and Reality

The historic development of the West, its impact on the American character, and a study of how myths become accepted "fact."
Category 2. 3 credits.

HI 208 American Immigrant History

Survey of immigration. Topics such as old-world background, impact on US, nativism, cultural pluralism, religion, mobility, family and politics.
Category 1. 3 credits.

HI 209 Afro-American History

Prerequisites: HI 111, HI 112

The role of blacks in American society from the seventeenth century to the present, emphasizing the institution of slavery.
Category 3. 3 credits.

HI 210 Psychological Foundations of Current History

An attempt to ascertain certain climates of opinion within which far-reaching decisions were both made and responded to.
Category 1. 3 credits.

HI/PO 211 History of US Foreign Policy I

Prerequisite: HI 111 or HI 112

Colonial origins to the era of the Spanish-American War. The sources and development of US foreign policy in that period.
Category 1. 3 credits.

HI/PO 212 History of US Foreign Policy II

Prerequisite:HI 111 or HI 112

From 1900 to recent times: US foreign policy traditions and the challenges of great power status.
Category 1. 3 credits.

HI 215 American Intellectual History

Prerequisites: HI 111, HI 112

Puritanism, the Enlightenment, romanticism, Darwinism, pragmatism, naturalism, fundamentalism, the liberal-progressive ethic, the new left and neo-conservatism.
Category 3. 3 credits.

HI 216 Economic History of the US

An introduction to United States economic development; particular attention will be paid to industrialization and the labor force.
Category 2. 3 credits.

HI 217 US Social History

Survey of social and cultural history. Topics such as family, religion, education, popular literature, architecture, transportation and reform.
Category 2. 3 credits.

HI/PO 218 US Constitutional History I

The development of constitutional history as seen in decisions of the US Supreme Court and their effects from 1789 to 1921.
Category 2. 3 credits.

HI/PO 219 US Constitutional History II

Supreme Court decision-making since 1921: federal-state relations, civil liberties, civil rights, loyalty program, labor, rights of defendants.
Category 2. 3 credits.

HI 220 US Foreign Policy in Transition: 1861-1920

Prerequisite: HI 111 or HI 112

A study of the changes in US foreign policy from the proclamation of the Union blockade to the 1920 presidential election.
Category 3. 3 credits.

HI 223 History of Modern France

Prerequisite: HI 101 or HI 102

Domestic and foreign problems of nineteenth and twentieth century France.
Category 2. 3 credits.

HI 224 English History I

Prerequisite: HI 101 or HI 102

English history from Roman Britain to 1688: the assimilation of the Anglo-Saxons with the Celts, the Norman Conquest, reign of Elizabeth I, Puritan revolt.
Category 2. 3 credits.

HI 225 English History II

Prerequisite: HI 224

English history from the reign of William and Mary to the present. Focus on the expansion of the British Empire and the growth of industrialization.
Category 2. 3 credits.

HI 231 European Intellectual History I

Prerequisite: HI 101 or HI 102

The main theoretical works, philosophic, psychological and scientific, from Plato to the eighteenth century.
Category 3. 3 credits.

HI 232 European Intellectual History II

Prerequisite: HI 101 or HI 102

The main theoretical works, philosophic, psychological and scientific, of the nineteenth and twentieth centuries.
Category 3. 3 credits.

HI 233 History of Latin America

Prerequisite: HI 101 or HI 102

The Spanish Conquest, colonial institutions, wars of independence and development of Mexico, Brazil, and Argentina.
Category 3. 3 credits.

HI 234/HI 235 Russian History I and II

A study of major political, economic, social, intellectual, and diplomatic currents in Russia, from the Kievan era to Stalin.
Category 1. 3 credits each.

HI 236/HI 237 Modern Far East History I and II

Civilizations dramatically different from our own, focusing upon China, Japan, and Southeast Asia since 1600.
Category 1. 3 credits each.

HI 238 American-Russian Relations 1781 - Present

An analysis of American-Russian relations from their inception to the present, stressing the period since 1917.
Category 3. 3 credits.

HI 239 The US and East Asia

An examination of the American role in East Asia, focusing upon American-Chinese relations, American-Japanese relations, and the Indo-China conflict.
Category 3. 3 credits.

HI 241 English Constitutional History

The development of English constitutional history and principles from the conquest by the Anglo-Saxons to 1776.
Category 2. 3 credits.

HI 242 History of Early Modern Europe

Forces that shaped Europe since the Reformation: the political, economic, and intellectual context of the external expansion as well as the internal turmoils, such as the Thirty Years War and the European economy to 1789.
Category 3. 3 credits.

HI 243 European Urban History

The process of accelerating urbanization in Europe since the eighteenth century: cultural, social, economic, and political aspects of urban life.
Category 3. 3 credits.

HI 244 American Urban History

The process of accelerating urbanization in America since the nineteenth century: cultural, social, economic and political aspects of urban life.
Category 3. 3 credits.

HI 245 History of Modern Germany I

The origins and growth of Brandenburg-Prussia; their impact on the rest of Germany from the foundation of the Holy Roman Empire to the emergence of the Second Reich in 1871.
Category 1. 3 credits.

HI 246 History of Modern Germany II

German economic and political crises from 1870 to the present.
Category 2. 3 credits.

HI 249 US Labor History I

The relationship between workers, their employers, and the surrounding community between 1815 and World War II.
Category 2. 3 credits.

HI 250 US Labor History II

Examines the American Labor movement from World War II to the present.
Category 2. 3 credits.

HI 251 Age of Jackson

Prerequisites: HI 111 or HI 112

Political, social, economic, and intellectual developments in the second quarter of the nineteenth century.
Category 3. 3 credits.

HI 252 Civil War and Reconstruction

Prerequisite: HI 111

Sectionalism, slavery, and modern industrial warfare as well as their impact on the political and racial fabric of America.
Category 2. 3 credits.

HI 253 The Age of Reform: 1877-1920

Prerequisites: HI 111, HI 112

An analysis of the transformation of America, including reform response to the Gilded Age's industrialization, urbanization, and immigration patterns.
Category 2. 3 credits.

HI 254 Twentieth Century US History

Prerequisites: HI 111 or HI 112

Contemporary American civilization from the Harding Administration into the post-World War II period.
Category 1. 3 credits.

HI 255 Organized Labor: A Contemporary View

Examines the American labor movement from an historical perspective and its position in the United States today.
Category 3. 3 credits.

HI 256 The History of the Cold War

The origins of the Cold War, American, Soviet and Chinese foreign policies, arms control negotiations and future prospects.
Category 3. 3 credits.

HI 257 Political Terrorism in Historical Perspective

A comparative approach to the terrorist movements of the nineteenth and twentieth centuries, concentrating on the European groups.
Category 3. 3 credits.

HI 258 Russia Since the Stalin Era

An analysis of the major political, economic and diplomatic developments in the (former) Soviet Union since the death of Stalin; the formation of the Commonwealth of Independent States.
Category 2. 3 credits.

HI 259 Crisis Management

A study of the decision-making process regarding crisis situations, i.e., the role of the President, Congress, Intelligence Community and the Military.
Category 2. 3 credits.

HI 261 Middle East History I

The rise and expansion of Islam: the Caliphate, Muslim religion, civilization, and its impact on the West, decline of medieval Islam.
Category 2. 3 credits.

HI 262 Middle East History II

The Ottoman Empire: expansion, institutions, impact on Europe, decline of the Empire.
Category 2. 3 credits.

HI 263 US - Middle East Relations

Prerequisite: HI 101 or HI 102 or HI 111 or HI 112

Course will discuss the influence the Middle East has had on US policy since US independence to the present.
Category 2. 3 credits.

HI 264 American Constitutional Law

American Constitutional Law; civil liberties, rights of criminal defendants, Federal-state relations, interpreting the Constitutions.
Category 2. 3 credits.

HI 266 United States History Since 1945

United States history since 1945. Domestic and foreign affairs during the Truman, Eisenhower, Kennedy, Johnson, Nixon, Ford, Carter, and Reagan administrations.
Category 2. 3 credits.

HI 268 American Revolutionary Period

Basic problems between English colonies and mother country, military aspects of the American Revolution, Confederation Period, making of the Constitution.
Category 2. 3 credits.

HI 270 Writings on Feminism in Historical Perspective

Prerequisite: HI 101 or HI 102 or HI 111 or HI 112

This course examines the writings of Euro-American, male and female feminists who promoted the interests of women during the 18th-20th centuries.
Category 2. 3 credits.

HI 271 Women and Work in Historical Perspective

Prerequisite: HI 101 or HI 102 or HI 111 or HI 112

This course undertakes to examine women's work conditions and the opposition to its continuation in Europe and America, 16th-19th centuries.
Category 2. 3 credits.

HI 272 Evolution of Women's Rights: Natural Law to Human Rights Law in Historical Perspective

Prerequisite: HI 101 or HI 102 or HI 111 or HI 112

This course analyzes the evolution of Women's Rights with emphasis on its role in the twentieth century's International Law of Human Rights.
Category 2. 3 credits.

HI 273 Ideas of Men and Women in Historical Perspective

Prerequisite: HI 101 or HI 102 or HI 111 or HI 112

This survey course focuses on ideas about the sexes which have predominated in the West.
Category 2. 3 credits.

HI 274 Sex, Marriage and the Family in Historical Perspective

Prerequisite: HI 101 or HI 102 or HI 111 or HI 112

This course will undertake a study of courtship, marriage and family life-cycle patterns in England and America during the 19th century.
Category 2. 3 credits.

HI 275 The History of Childhood: Adults vs. Children in History

Prerequisite: HI 101 or HI 102 or HI 111 or HI 112

The central focus of this course is to determine how children were regarded and treated by adults during the 16-19th centuries.
Category 2. 3 credits.

HI 300 The Early National Period of the US: 1783-1829

Prerequisite: HI 111

The Confederation, Constitution, the emergence of political parties, and the rise of American nationality.
Category 3. 3 credits.

HI 305 Ancient History

Prerequisite: HI 101

The history, culture, and politics of ancient Greece and Rome.
Category 2. 3 credits.

HI 306 Renaissance and Reformation

Prerequisite: HI 101

Intellectual and cultural history of Europe from the middle of the thirteenth to the middle of the sixteenth century.
Category 3. 3 credits.

HI 308 Europe in the Age of Revolution and Nationalism: 1789-1870

Prerequisite: HI 101 or HI 102

The French Revolution, Napoleon, Congress of Vienna; nationalism, liberalism, socialism; Second French Empire; German and Italian unification.
Category 2. 3 credits.

HI 309 Diplomatic History of Modern Europe

Prerequisite: HI 102

The foreign policies of the major European nations from 1870 to the present.
Category 2. 3 credits.

HI 312 Twentieth Century Europe I

Prerequisites: HI 101 or HI 102

The politics and economics of WW I; the pattern of restlessness between the wars in the rise of dictatorship in Germany, Italy, and Spain; the regimentation of economic control.
Category 1. 3 credits.

HI 313 Twentieth Century Europe II

Prerequisites: HI 101 or HI 102

Politics and diplomacy of World War II; the dynamics of the rebirth of Europe since VE Day. The effects of total war upon Europe.
Category 2. 3 credits.

HI 314 Twentieth Century Middle East History

Prerequisite: HI 101 or HI 102 or HI 261 or HI 262

The Young Turk Revolution, division of Ottoman Empire in World War I; rise of new states; the Arab-Israeli conflict.
Category 2. 3 credits.

HI/PO 330 Politics of the Middle East I

Prerequisite: PO 101 or HI 261 or HI 314

Discusses governments and politics of eastern Arab countries, Turkey, Iran, and Israel. International rivalries in the area are also discussed.
Category 1. 3 credits.

HI 400 Independent Study in History

Prerequisite: Consent of instructor

Special topics for advanced research and study under the guidance of a faculty member.
Category 1. 1 - 6 credits.

HI 410 American History and Historians

Prerequisite: Consent of instructor

Intensive study of original sources and preparation of a research paper, analysis of major schools of historical thought.
Category 3. 3 credits.

HI 420 Seminar in American Constitutional History

Prerequisite: Consent of instructor

Reading, research and discussion on a specially selected phase of American constitutional development; an original paper of significant scholarship is required.
Category 3. 3 credits.

HI 430 European History and Historians

Prerequisite: Consent of instructor

The study of Europe's major schools of historical thought with emphasis on how Europe's history has been written.
Category 3. 3 credits.

HI 435 Issues in Modern Middle East

Prerequisite: HI 261 or HI 314 or HI 330

Emphasizes reading, research and writing. Students will choose issues, research them, make a class presentation, then develop the presentation into a paper.
Category 3. 3 credits.

HI 440 Internship in American Studies

Prerequisite: Consent of instructor

Internships in museums, archives, government agencies, etc. Performing a variety of tasks at beginning professional level in cooperating institutions.
Category 1. 6-12 credits.

HI 450 Special Topics in History

Prerequisite: Consent of Instructor

Selected areas of interest to students and instructors.
Category 3. 3 credits.

History Courses (Graduate)

HI 910 The Study and Writing of History

Historical methodology, modern historiographical views, and the emergence of the New History; i.e., psychohistory, family history, and quantitative history.
3 credits.

HI 912 Industrial Revolution: Past, Present, Future

Prerequisite: Survey course in modern history

A comparison of the European and American Industrial Revolutions and their consequences from the eighteenth through the twentieth centuries. Field trips are planned to mill towns and industrial cities.
3 credits.

HI 914 The Gilded Age: 1865-1900

A depiction of the period when America went through a rapid socio-economic transformation in the areas of industrialization, urbanization, and immigration.
3 credits.

HI 915 Populism, Progressivism and Socialism in the US: 1877-1920

Analysis of three reform movements that were an ideological response to the Gilded Age's excesses and an attempt to humanize America's economic transformation.
3 credits.

HI 916 Revolution in the Twentieth Century

After examining a number of theories regarding revolutionary developments this course will focus upon the major revolutions of the present century; i.e., Russian, Chinese, Nazi, Cuban and Mexican.
3 credits.

HI 918 The US and the Middle East

Discusses growth of US economic, cultural, political, and strategic interests in Middle East; emphasis on post-World War II period.
3 credits.

HI 920 Japan in the Twentieth Century

An evaluation of the role of Japan as an emerging world power and economic giant during the present century.
3 credits.

HI 922 US & Soviet Relations

A study of the central issues in American-Soviet relations since 1917. Special attention will be devoted to the question of recognition, the origins of the Cold War, the Cuban Missile Crisis, and recent developments.
3 credits.

HI 924 Selected Topics in US-East Asian Relations

An examination of major problems affecting American foreign policy in East Asia since World War II; i.e., the origins of the Cold War in Asia, America's entry into the Korean War, the Offshore Islands issue, America's involvement in the Vietnam conflict, and US-Chinese relations.
3 credits.

HI 932 Loving, Parenting, and Dying: The English American Family, an Historic Perspective

Examines selected topics in the family life of the English and Americans from the sixteenth century. Among the topics to be studied are: courtship behavior, marriage patterns, childrearing techniques and conditions of family break-up. A research paper will be required.
3 credits.

HI 934 Women's Rights: 18th Century to the Present

Study of the major principles underlying the women's rights movement. It will start by examining the claims made by individuals during the early modern period in Europe and end by analyzing women's rights documents of international organizations of the twentieth century. A research paper will be required.
3 credits.

HI 946 European Intellectual History from the Enlightenment to the Present

The major ideas of the era; utilitarian, nationalist, and socialist schools; fascism, communism and liberalism.
3 credits.

HI 952 Russia in the Twentieth Century

An evaluation of major political economic, and diplomatic developments in the Soviet Union, stressing Leninism, Stalinism, and Khruschevism.
3 credits.

HI 953 The Mind of Modern Russia

An analysis of the central attitudes and ideas that have shaped the Russian mind from the Muscovite era to the present.
3 credits.

HI 970 China in the Twentieth Century

A consideration of the major political, diplomatic, and intellectual developments in China since 1949.
3 credits.

HI 992 Seminar on American Constitutional History

Varied topics to meet the student's needs; e.g., the Marshall Court, Taney Court, Warren-Burger Courts, etc.
3 credits.

HI 999 Independent Study in History

An in-depth investigation of some historical event, issue or person utilizing primary sources.
1-3 credits.

Political Science Courses

PO 101 Principles of Political Science

An introduction to political analysis; study of the concepts of power, legitimacy, natural law, justice and liberty.
Category 1. 3 credits.

PO 102 Constitutions: US and Massachusetts

Examines the origins and development of the United States and Massachusetts Constitutions. Meets Massachusetts General Laws, Chapter 73, Sec 2A requirement.
Category 1. 3 credits.

PO 103 Fundamentals of Legal Research

Locating the text of statutes, regulations and court decisions (state and national) for a particular date and on specific subjects.
Category 3. 1 credit.

PO 201 International Relations I

Prerequisite: PO 101 or HI 101 or HI 102

The theory of international relations and important contemporary problems.
Category 2. 3 credits.

PO 202 International Relations II

Prerequisite: PO 101 or HI 101 or HI 102

A continuing consideration of the theory of international relations and important contemporary problems.
Category 2. 3 credits.

PO 210 American Government

Examines our national government and politics.
Category 1. 3 credits.

PO/HI 211 History of US Foreign Policy I

Prerequisite: HI 111 or HI 112

Colonial origins to the era of the Spanish-American War. The sources and development of US foreign policy in that period.
Category 1. 3 credits.

PO/HI 212 History of US Foreign Policy II

Prerequisite: HI 111 or HI 112

From 1900 to recent times; US foreign policy traditions and the challenges of great power status.
Category 1. 3 credits.

PO 213 The Modern Presidency

This course will examine the evolution of the presidency. Special attention is given to those presidents who have expanded the office.
Category 3. 3 credits.

PO 215 State and Local Government

Examines sub-national governments and politics in the United States; the structure and problems of these governments.
Category 1. 3 credits.

PO 216 Political Parties and Pressure Groups

Examines the organization, functions, and methods of political parties; the role of interest groups in the American political process.
Category 1. 3 credits.

PO 217 The Legislative Process

The nature and function of the US Congress, including legislative campaigns, politics, and major problems of Congress.
Category 3. 3 credits.

PO/HI 218 US Constitutional History I

The development of constitutional history as seen in decisions of the US Supreme Court and their effects from 1789 to 1921.
Category 2. 3 credits.

PO/HI 219 US Constitutional History II

Supreme Court decision-making from 1921; federal-state relations, civil liberties, civil rights, loyalty program, labor, rights of defendants.
Category 2. 3 credits.

PO 220 Comparative Politics I

Prerequisite: PO 101

A comparative study of the politics and governments of Great Britain, West Germany, and the Soviet Union.
Category 3. 3 credits.

PO 221 Comparative Politics II

Prerequisite: PO 101

A comparative study of the political and social systems of South Africa and India, including recent trends in their political development.
Category 3. 3 credits.

PO/HI 259 Crisis Management

A study of the decision making process regarding crisis situations, i.e., the role of the President, Congress, Intelligence Community and the Military.
Category 2. 3 credits.

PO/HI 330 Politics of the Middle East I

Prerequisite: PO 101 or HI 261 or HI 314

Discusses governments and politics of eastern Arab countries, Turkey, Iran, and Israel. International rivalries in the area are also discussed.
Category 1. 3 credits.

PO 350 Soviet Government and Politics

Prerequisite: PO 101

An analysis of the forces and institutions which have influenced political developments in the Soviet Union since 1917.
Category 3. 3 credits.

PO 351 Comparative East European Government and Politics

Prerequisite: PO 101

An analysis of the political developments in the East European nations since World War II.
Category 3. 3 credits.

PO 355 Soviet Foreign Policy

Prerequisite: PO 101

Instruments of Soviet foreign relations; an analysis of Russian foreign affairs since 1917.
Category 3. 3 credits.

PO 360 The Government and Politics of China

Prerequisite: PO 101

Political and international developments of modern China; Communist ideology and instruments of power.
Category 3. 3 credits.

PO 370 Crisis Politics

Prerequisite: PO 101

Analysis of theories regarding the roots of violence, revolution, and terrorism. Special attention will be devoted to violence in America.
Category 2. 3 credits.

PO 380 American Foreign Policy Since the Cold War

Prerequisite: PO 101 or HI 112 or HI 212

Instruments of American foreign policy; major foreign policy developments since 1947.
Category 2. 3 credits.

PO 385 Power and Policy: The USA and the USSR

Prerequisite: PO 101

An analysis of the political institutions, leadership and practices in the Soviet Union and the US. Focus on the structure of government, the relationship between government and society and political decision-making.
Category 2. 3 credits.

PO 400 Independent Study in Political Science

Prerequisite: Consent of Instructor

Special topics for advanced research and study under the guidance of a faculty member.
Category 1. 1 - 6 credits.

PO 450 Special Topics in Political Science

Prerequisite: Consent of Instructor

Selected areas of interest to students and instructors.
Category 3. 3 credits.

Languages and Literature

English

James R. Ayer, Professor (1964)
A.B., State University of New York, Albany; M.A., Columbia University;
Ph.D., University of Massachusetts

Philip J. Burns, Assistant Professor (1990)
B.A., Miami University; M.A. Indiana University, Bloomington;
Ph.D., University of Rhode Island

Phyllis A. Crowley, Associate Professor (1961)
B.S., Worcester State College; M.A., The Catholic University of America

Robert P. Ellis, Associate Professor (1965)
A.B., State University of New York, Binghamton; M.A., Boston College

C. Kenneth Gibbs, Jr., Professor (1970)
A.B., Amherst College; M.A., Rutgers University; M.F.A.,
Ph.D., University of Massachusetts

Inger Gilbert, Assistant Professor (1989)
B.A., Queens College; M.A., Brown University; Ph.D., University of Washington

Merrill H. Goldwyn, Professor (1968)
A.B., M.A., Harvard University; Ph.D., Columbia University

Linda S. Gordon, Professor (1971)
A.B., Brooklyn College of the City University of New York;
M.A., Ph.D., Harvard University

Emmet J. Grandone, Instructor (1965)
A.B., Clark University; M.A., University of Connecticut

Ruth P. Haber, Assistant Professor (1989)
B.A., M.A., Ph.D., University of California, Santa Barbara

Jeffrey L. Roberts, Professor (1970)
A.B., Southwest Missouri State University; M.A., University of Missouri;
Ph.D., University of Massachusetts

Richard E. Sullivan, Associate Professor (1968)
A.B., Providence College; M.A., Boston College

Robert L. Walker, Professor (1970), Department Chair
A.B., Bard College; Ph.D., University of Connecticut

Charles Wasilko, Associate Professor (1970)
A.B., Dickinson College; M.A., Harvard University

The principal objectives of the English program are to help students to communicate clearly, logically and effectively; to use research methods intelligently; and to analyze, interpret and enjoy literature. The program also seeks to familiarize students with the classics of world literature, emphasizing the major authors, works and literary movements which distinguish English and American literature. Lambda Iota Tau, a national honor society in literature, is available to outstanding junior and senior English majors and minors.

Requirements for a Major: 36 credits in English (exclusive of EN 098, EN 099, EN 101 and EN 102) which must include the following:

EN 210	Survey of American Literature I **or**
EN 211	Survey of American Literature II
EN 220	Survey of English Literature I
EN 221	Survey of English Literature II
EN 360	Shakespeare I

Electives: 24 credits in English (including a minimum of 12 credits in 300 or 400 level literature courses).

Students declaring English as a major, beginning with September, 1993, must demonstrate a competency in a foreign language at the intermediate level.

Requirements for a Major in English, Concentration in Writing: 18 credits in writing courses (exclusive of EN 098, EN 099, EN 101 and EN 102) in addition to the 12 credits in Shakespeare (EN 360) and surveys (EN 210 or EN 211; EN 220 and EN 221) required of all majors. Must include a 3-6 credit internship in writing, whether in English (EN 475) or other languages (FR 475 or SP 475), as part of the l8 credits in writing courses. The remaining 6 credits must be literature electives at the 300-level or above.

The remaining 12-15 credits in writing will be selected from the following:

EN 251	Advanced Expository Writing
EN 252	Technical Writing
EN 253	Business Communications
EN 254	Critical Writing
EN 256	Creative Writing: Prose I
EN 258	Creative Writing: Prose II
EN 260	Creative Writing: Poetry I
EN 262	Creative Writing: Poetry II
EN 266	Journalism: Practice and Techniques
EN 267	Journalism: Advanced Newswriting
EN 268	Journalism: Feature Writing
EN 269	Journalism: Interpretive Reporting
EN 270	Journalism: Editing
EN 271	Journalism: Workshop
CM 366	Scriptwriting

Women's Studies: English majors may elect an interdisciplinary concentration in women's studies. They must complete the requirements for the standard English major. They must have 15 credits in the women's studies courses listed below, with the English courses among them counting toward the major.

EN 172	Women and Literature
EN 174	Women Poets
EN 345	Women in American Literature
HE 210	Women's Health Issues
HI 270	Writings on Feminism in Historical Perspective
HI 271	Women and Work in Historical Perspective
HI 272	Evolution of Women's Rights
HI 273	Ideas of Men and Women in Historical Perspective
PS 263	Psychology of Women

Requirements for a Minor: 18 credits in English (exclusive of EN 098, EN 099, EN 101 and EN 102) which must include the following:

EN 210	Survey of American Literature I **or**
EN 211	Survey of American Literature II
EN 220	Survey of English Literature I
EN 221	Survey of English Literature II

English electives: 9 credits

Graduate Program

Master of Education, Concentration in English

Admission Requirements: In order to be admitted to the English Concentration, a candidate must meet the general requirements for admission to the Master of Education degree program. The applicant shall, prior to admission into the concentration, have earned 18 semester hours of credit in English, excluding English Composition, at an accredited institution of higher education.

Requirements of the Program:

Education foundation courses: 9 credits

ED 996	Research and Evaluation
ED 997	Advanced Philosophical Foundations of Education
ED 998	Advanced Psychological Foundations of Education

English concentration courses: The student will select, with the approval of a graduate advisor, 18 credits from among three areas of concentration: Writing, History, and Criticism; American Literature; and English Literature. Two additional graduate courses in English or other area are also required.

Comprehensive Examination: Candidates are required to pass a written comprehensive examination upon completion of their course work. The subject and form of the examination will be determined by the student and the comprehensive committee.

English Courses (Undergraduate)

EN 098 English as a Second Language

Specialized instruction for non-native writers in the principles and practice of the writing process. Three institutional credits, not counted toward degree.
Category 1.

EN 099 Developmental English

Concentration on language basics - spelling, vocabulary, grammar, usage, with practice in sentences and paragraphs. Three institutional credits, not counted toward degree.
Category 3.

EN 101 English Composition I

Instruction and practice in the process of composing expository essays. Emphasis on planning, drafting, revising and editing. [Required of all students unless exempted by the Languages and Literature Department.]
Category 1. 3 credits.

EN 102 English Composition II

A continuation of EN 101. Emphasis on critical thinking, stylistic analysis, argumentation, research and documentation. [Required of all students unless exempted by the Languages and Literature Department.]
Category 1. 3 credits.

EN 105 Introduction to Literature

A critical introduction to the principal genres of literature: poetry, drama, and fiction.
Category 1. 3 credits.

EN 130 World Literature I

Greek and Roman masterpieces in translation, including Homer, Greek tragedy, Plato, and Virgil as well as selections from the Bible.
Category 1. 3 credits.

EN 131 World Literature II

World masterpieces from the Renaissance to the modern period, with emphasis on continental works in translation.
Category 1. 3 credits.

EN 140 Introduction to Poetry

Examination and appreciation of the techniques and types of poetry including the sonnet, the pastoral, the mock heroic, and the ode.
Category 1. 3 credits.

EN 145 Introduction to Drama

Theories and development of tragedy and comedy; plays of Sophocles to Eugene O'Neill as illustrations of these and related genres.
Category 1. 3 credits.

EN 150 The Short Story

Introduction to the art of the short story through analysis of representative works.
Category 1. 3 credits.

EN 152 The Novelette

The major practitioners of the novelette over the past century: Conrad, Mann, Kafka, Dostoyevsky, and others.
Category 1. 3 credits.

EN 156 Mythology

Myths and legends of ancient Greece and Rome which form a part of the classical tradition in English literature.
Category 1. 3 credits.

EN 158 Science Fiction

The nature and function of nineteenth and twentieth-century science fiction literature: Wells, Verne, Asimov, Bradbury, and others.
Category 2. 3 credits.

EN 160 The Literature of the Bible

Biblical writings. Emphasis will be placed on the Old Testament.
Category 1. 3 credits.

EN 164 Fantasy, Faerie and Folk

Recurrent themes, literary characteristics, and structure of folktales, faerie and fantasy.
Category 2. 3 credits.

EN 167 Literature and Human Rights

An analysis of international creative writing dealing with the subject of human rights. Resource persons from different fields will be utilized.
Category 3. 3 credits.

EN 168 Film and Literature

An examination of the fundamental, rhetorical techniques of film and literature to determine the similarities of and differences between the two forms of expression.
Category 2. 3 credits.

EN 170 The Search for Identity: Literature of Self-Discovery

Understanding the nature and power of fiction, the relation between problems of individual identity, and the operation of the imagination.
Category 3. 3 credits.

EN 172 Women and Literature

Explores basic issues and problems in literature by and about women.
Category 1. 3 credits.

EN 174 Women Poets

A close reading and analysis of poetry written by women from a historical as well as a contemporary feminist perspective.
Category 3. 3 credits.

EN 210 Survey of American Literature I

Prerequisite: EN 102

American literature, beginnings to the Civil War; colonial and federal periods and transcendentalists.
Category 1. 3 credits.

EN 211 Survey of American Literature II

Prerequisite: EN 102

American literature since the Civil War; naturalism and realism.
Category 1. 3 credits.

EN 220 Survey of English Literature I

Prerequisite: EN 102

The development of English literature from the beginnings to 1798. Required of all English majors.
Category 1. 3 credits.

EN 221 Survey of English Literature II

Prerequisite: EN 102

The development of English literature from 1798 to the present. Required of all English majors.
Category 1. 3 credits.

EN 251 Advanced Expository Writing

Prerequisite: EN 102

Instruction and practice in writing expository essays. Analysis of selected readings on a common theme or subject area.
Category 1. 3 credits.

EN 252 Technical Writing

Prerequisite: EN 102

Focuses on how to write and produce basic documents, from research and progress reports to brochures and manuals.
Category 1. 3 credits.

EN 253 Business Communications

Prerequisite: EN 102

A consideration of accepted business communication conventions; correspondence, memoranda, survey reports, proposals, interim reports and project reports. [Open to Business Administration majors only.]
Category 1. 3 credits.

EN 254 Critical Writing

Prerequisite: EN 102

Critical examination of English prose style; class reports; practice in the writing of analytical papers.
Category 2. 3 credits.

EN 256 Creative Writing: Prose I

Prerequisite: EN 102

An opportunity to develop the student's writing ability and critical sense; work of students and professional authors will be analyzed.
Category 1. 3 credits.

EN 258 Creative Writing: Prose II

Prerequisite: EN 102

Continuation of EN 256; instruction in composing various types of prose fiction. EN 256 is not required as a prerequisite.
Category 2. 3 credits.

EN 260 Creative Writing: Poetry I

Prerequisite: EN 102

Developing the student's skill in the creation of poetry; attention to contemporary trends in American poetry.
Category 1. 3 credits.

EN 262 Creative Writing: Poetry II

Prerequisite: EN 102

Conversation with practicing poets; preparation of a small booklet of poems. EN 260 is not required as a prerequisite.
Category 1. 3 credits.

EN 266 Journalism: Practice and Techniques

Prerequisite: EN 102

Training in developing, reporting, writing, and editing straight news, feature, profile, and interpretive stories.
Category 1. 3 credits.

EN 267 Journalism: Advanced Newswriting

Prerequisite: EN 102

Provides advanced training in the development and writing of straight news stories.
Category 3. 3 credits.

EN 268 Journalism: Feature Writing

Prerequisite: EN 102

Provides advanced training in finding, researching, developing, and writing feature stories for newspapers and magazines.
Category 3. 3 credits.

EN 269 Journalism: Interpretive Reporting

Prerequisite: EN 102

Provides advanced training in developing and writing profiles and interpretive stories.
Category 3. 3 credits.

EN 270 Journalism: Editing

Prerequisite: EN 102

Training in copy selection, copy editing, story placement, headline writing, layout, and use of style books.
Category 3. 3 credits.

EN 271 Journalism Workshop

Prerequisite: EN 102

Provides lab sessions in all aspects of journalism for advanced writers, emphasis on publication.
Category 3. 3 credits.

EN 300 History of the English Language

Prerequisite: EN 102

A study of the origins of the English language from Old English through Middle English to the present.
Category 3. 3 credits.

EN 301 Aspects of Language

Prerequisite: EN 102

A theoretical investigation into the nature of human language and linguistic creativity, comprising grammatical, syntactic, semantic, social and philosophical aspects.
Category 2. 3 credits.

EN 302 Medieval Literature

Prerequisite: EN 102

Ideas of medieval Christianity, courtly love, and chivalric honor as they appear in lyric poetry, drama, and Arthurian romance.
Category 3. 3 credits.

EN 306 The Renaissance

Prerequisite: EN 102

The non-dramatic literature of Tudor England; emphasis on More, Wyatt, Sidney, Spenser, the earlier works of Shakespeare, Donne, and Bacon.
Category 3. 3 credits.

EN 308 Seventeenth-Century Literature

Prerequisite: EN 102

Prose and poetry of the era with special attention to the major works of Jonson and Donne.
Category 3. 3 credits.

EN 310 Eighteenth-Century Literature

Prerequisite: EN 102

The major figures of the Enlightenment with particular emphasis on satire: Dryden, Pope, Swift, Johnson, and Boswell.
Category 3. 3 credits.

EN 312 The English Novel of the Eighteenth Century

Prerequisite: EN 102

Purpose, range, and developments in the novel of the eighteenth century: Defoe, Richardson, Fielding, Smollett, Sterne, and others.
Category 3. 3 credits.

EN 314 The English Novel of the Nineteenth Century

Prerequisite: EN 102

Representative nineteenth-century novelists: Austen, Bronte, Dickens, Thackeray, Eliot, Hardy, Conrad and others.
Category 3. 3 credits.

EN 316 The Modern British Novel

Prerequisite: EN 102

Selected works of major British novelists from 1900 through World War II: Joyce, Lawrence, Woolf, Forster, and others.
Category 3. 3 credits.

EN 318 Romantic Literature

Prerequisite: EN 102

Poetry and prose with special emphasis on the poetry of Wordsworth, Coleridge, Shelley, Byron, and Keats.
Category 3. 3 credits.

EN 320 Victorian Literature

Prerequisite: EN 102

Study of selected prose and poetry of the major writers of the Victorian period.
Category 3. 3 credits.

EN 324 Continental Novelists I

Prerequisite: EN 102

European novelists of the nineteenth and twentieth centuries including Dostoyevsky, Mann, Camus, and others.
Category 3. 3 credits.

EN 330 Modern Drama

Prerequisite: EN 102

The theories and development of realism, naturalism, expressionism, folk drama; representative plays from Ibsen to O'Neill.
Category 3. 3 credits.

EN 332 Contemporary Drama

Prerequisite: EN 102

The dramatic works and aesthetics of Beckett, Pinter, and other selected dramatists of the contemporary theatre.
Category 3. 3 credits.

EN 334 Modern Poetry

Prerequisite: EN 102

Close analysis of the development of British and American poetry from the late nineteenth century to World War II.
Category 3. 3 credits.

EN 336 Contemporary Poetry

Prerequisite: EN 102

Concentrates on poets whose major work was written after World War II; special attention to authors presently writing and publishing.
Category 3. 3 credits.

EN 338 Contemporary Novel

Prerequisite: EN 102

American and English novels after World War II with emphasis on living novelists.
Category 3. 3 credits.

EN 340 Twentieth-Century Literature

Prerequisite: EN 102

A survey of the major trends in twentieth-century poetry, drama, and fiction.
Category 3. 3 credits.

EN 342 The American Novel I

Prerequisite: EN 102

The American novel from its origin to 1890; Brown, Cooper, Melville, Hawthorne, and others.
Category 2. 3 credits.

EN 344 The American Novel II

Prerequisite: EN 102

The American novelists from 1890 to World War II: Crane, Wolfe, Dreiser, Anderson, Hemingway, Steinbeck, and others.
Category 2. 3 credits.

EN 345 Women in American Literature

Prerequisite: EN 102

The American woman as she is portrayed in fiction, non-fiction, and poetry.
Category 3. 3 credits.

EN 346 History of Literary Criticism

Prerequisite: EN 102

An historical introduction to speculation concerning the nature and function of literature: selections from Plato to Frye.
Category 3. 3 credits.

EN 350 Chaucer

Prerequisite: EN 102

A study of the development of Chaucer's versatile art and writings as expressive of the later Middle Ages.
Category 1. 3 credits.

EN 360 Shakespeare I

Prerequisite: EN 102

Major plays. Required of all English majors.
Category 1. 3 credits.

EN 362 Shakespeare II

Prerequisite: EN 102

A continuation of EN 360; includes the sonnets and less familiar plays.
Category 2. 3 credits.

EN 380 Milton

Prerequisite: EN 102

A study of Milton's work from early poems to Paradise Lost, Paradise Regained, and Samson Agonistes; includes some prose pamphlets.
Category 2. 3 credits.

EN 390 The Irish Literary Revival

Prerequisite: EN 102

The Irish literary renaissance; the origins of the movement; includes Joyce, Yeats, Synge, O'Casey, Lady Gregory, and others.
Category 3. 3 credits.

EN 400 Seminar

Prerequisite: EN 102

Student presentations on individual figures and particular problems in literature.
Category 1. 3 credits.

EN 410 Writing Practicum

Prerequisite: EN 102

Training and practice in one-to-one assistance for students' writing for any course, stage, or specific need.
Category 1. 3-6 credits.

EN 425 Independent Study in English

Prerequisite: EN 102, Consent of instructor

An opportunity for further study in a special field of interest under faculty supervision.
Category 1. 1-6 credits.

EN 450 Special Topics in Literature

Prerequisite: EN 102

Specific content will vary in response to particular student and faculty interests.
Category 1. 3 credits.

EN 475 Internship in English

Prerequisite: EN 102, Consent of instructor

Provides majors the opportunity to gain practical experience in areas where they may apply acquired critical and writing skills.
Category 1. 3-6 credits.

English Courses (Graduate)

EN 900 History and Structure of the English Language

The phonology, syntax, and lexicon of English from its proto-Indo-European origins to its contemporary dialects.
3 credits.

EN 902 Approaches to the Literary Experience

An introduction to practical criticism which applies a broad spectrum of critical approaches to a selected group of literary examples.
3 credits.

EN 904 Advanced Critical Writing

The major trends in the history and development of prose style from the Baroque to James.
3 credits.

EN 910 The Romantic Flowering in American Literature

The development of Romantic idealism in the origins of American fiction and poetry.
3 credits.

EN 912 Edgar Allan Poe: Selected Writings

An examination of the poems, stories, and literary criticism of Edgar Allan Poe.
3 credits.

EN 914 Realism and Naturalism

Realism as practiced by Twain and clarified by Howells, following the transition of realism to naturalism under Norris and Dreiser.
3 credits.

EN 916 American Novel I

The development of the American novel from Charles Brockden Brown through Melville and Hawthorne.
3 credits.

EN 918 American Novel II

The development of the American novel from naturalism and realism to the latest fiction of the twentieth century.
3 credits.

EN 920 Modern Drama

A survey of British, American, Irish, and continental drama from Ibsen through O'Neill.
3 credits.

EN 922 Modern Poetry

A study of the major figures who shaped American and British poetry between 1910 and 1950.
3 credits.

EN 930 English Literature to 1640

An historical and critical survey of works from the Anglo-Saxon and medieval periods through the Renaissance to 1640.
3 credits.

EN 932 Restoration and Neoclassicism: 1660-1798

An historical and critical survey of works of the Augustan Age including Dryden, Pope, Swift, Goldsmith, Johnson, Boswell and others.
3 credits.

EN 934 The Romantics and the Victorians: 1798-1901

An historical and critical survey of the prose and poetry of the nineteenth century including Wordsworth, Coleridge, Byron, Shelley, Keats, Tennyson, Arnold and Browning.
3 credits.

EN 936 The Development of the English Novel

A consideration of the development of the genre through the works of several of its major practitioners.
3 credits.

EN 938 The Worlds of Charles Dickens

Major aspects of the life and art of Dickens examined in a variety of contexts.
3 credits.

EN 940 The Modern British Novel

Major modern novels of Joyce, Lawrence, Forster, Woolf and others.
3 credits.

EN 950 Seminar

An exploration of the works of one or two major authors in depth.
3 credits.

EN 960 Special Topics

An exploration and consideration of a theme or topic of mutual interest to instructor and students.
3 credits.

Foreign Languages

Francisco Alcala, Professor (1970)
A.B., University of Comillas; M.A., University of Salamanca; M.A., Sorbonne,; M.A., Ph.D., New York University

Jennie M. Celona, Professor (1965)
Massachusetts College; M.A., Middlebury College; Ed.D., University of

Judith Jeon-Chapman, Instructor (1993)
B.A., College of St. Benedict; M.A., University of Washington

Margaret A. Kittredge, Associate Professor (1965)
A.B., Clark University; M.A.T., Harvard University; M.A., Assumption College

The degree programs in French and Spanish are designed for students whose interests and career plans have an international or multi-ethnic focus. Students who major in a language will develop listening, speaking, reading, and writing fluency and will study the culture, history and literature of the people who use the language.

Requirements for a Major in French: 36 credits in French including
- 200-level French courses (6 credits maximum)
- FR 320-329, advanced French language courses (9 credits minimum)
- FR 330-339, French civilization courses (3 credits minimum)
- FR 340-349, French literature courses (9 credits minimum)
- Courses in a second foreign language (6 credits minimum)

Requirements for a Minor in French: 18 credits in French including
- FR 100-299, beginning and intermediate courses (12 credits maximum)
- FR 300-499, advanced courses (6 credits minimum)

Requirements for a Major in Spanish: 36 credits including
- SP 210-213, intermediate Spanish courses (6 credits maximum)
- SP 321-324, advanced Spanish language courses (9 credits minimum)
- SP 331-333, Spanish civilization courses (6 credits minimum)
- SP 341-349, Spanish literature courses (6 credits minimum)
- Courses in a second foreign language (6 credits minimum)
- Spanish Elective: advanced language, civilization, or literature (3 credits)

Requirements for a Minor in Spanish: 18 credits including
- SP 100-299, beginning and intermediate courses (12 credits maximum)
- SP 300-499, advanced courses (6 credits minimum)

French Courses

FR 103 Beginning French I

Fundamentals of pronunciation, patterns of speech, basic structures. Develops listening, speaking, reading and writing skills.
Category 1. 3 credits.

FR 104 Beginning French II

Continuation of FR 103.
Category 1. 3 credits.

FR 210 Intermediate French I

Prerequisite: FR 104 or equivalent

Review of fundamentals and presentation of more complex grammatical features; development of conversational skills; selected readings, written and oral composition.
Category 1. 3 credits.

FR 211 Intermediate French II

Prerequisite: FR 210 or equivalent

Continuation of FR 210.
Category 1. 3 credits.

FR 321 Advanced French

Prerequisite: Two FR 200 level courses

Intensive review of grammar, practice in translation and composition. Conducted in French.
Category 3. 3 credits.

FR 322 Introduction to French Phonetics

Prerequisite: Two FR 200 level courses

Theory and practice in French sound system, clinical approach.
Category 3. 3 credits.

FR 323 French Conversation and Composition

Prerequisite: Two FR 200 level courses

Pronunciation and comprehension exercises, discussions, practice in paragraph, essay, and letter writing.
Category 3. 3 credits.

FR 324 Advanced French Conversation

Prerequisite: Two FR 200 level courses

Development of fluency and accuracy, free discussions, prepared oral presentations, practical exercises in oral expression.
Category 3. 3 credits.

FR 325 Advanced French Composition

Prerequisite: Two FR 200 level courses

Fine points of French grammar, essays, reports, practical correspondence; English to French translation.
3 Category 3. 3 credits.

FR 326 Commercial French

Prerequisites: Two FR 200 level courses

Instruction and practice in writing business communications in French: correspondence, memoranda, proposals, and reports.
Category 3. 3 credits.

FR 331 General French Civilization

Prerequisite: Two FR 200 level courses

Significant aspects of French history, geography, and cultural achievements to World War I.
Category 3. 3 credits.

FR 332 Contemporary French Civilization

Prerequisite: Two FR 200 level courses

French art, politics, and society since World War I.
Category 3. 3 credits.

FR 341 Introduction to French Literature

Prerequisite: Two FR 200 level courses

Major periods and genres of French literature; for majors and minors.
Category 3. 3 credits.

FR 342 Survey of French Literature I

Prerequisite: Two FR 200 level courses

Selections from the epic, drama, lyric poetry, and the major prose writers to major authors of the classical period.
Category 2. 3 credits.

FR 344 Survey of French Literature II

Prerequisite: Two FR 200 level courses

Major authors of the eighteenth and nineteenth centuries.
Category 2. 3 credits.

FR 346 Twentieth Century French Literature

Prerequisite: Two FR 200 level courses

Major novelists, dramatists, and poets from the turn of the century to the present.
Category 3. 3 credits.

FR 347 French Drama in the Twentieth Century

Prerequisites: Two FR 200 level courses

Trends in contemporary French drama. The dramatic works and aesthetics of Artaud, Genet, Ionesco, and others.
Category 3. 3 credits.

FR 348 Woman Writers in Twentieth Century French Literature

Prerequisites: Two FR 200 level Courses

Examines the status of women writers and their contributions to French literature and society.
Category 3. 3 credits.

FR 401 Seminar in French Studies

Prerequisite: For advanced students

Special topics in French language, literature or civilization.
Category 3. 3 credits.
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FR 402 Independent Study in French

Prerequisite: Consent of instructor

Study of a special topic. Both content and eligibility subject to departmental guidelines and approval.
Category 1. 1-6 credits.

FR 475 Internship in French

Prerequisite: Consent of instructor and department

Provides majors practical experience in areas where speaking, reading, and writing skills may be applied.
Category 1. 3 credits.

Spanish Courses

SP 101 Beginning Spanish I

Basic oral and written proficiency for daily communication; may be taken as a self-contained unit or as a basis for further development. Audio-visual method.
Category 1. 3 credits.

SP 102 Beginning Spanish II

Prerequisite: SP 101 or equivalent

Continuation of SP 101.
Category 1. 3 credits.

SP 210 Intermediate Spanish I

Prerequisite: SP 102 or equivalent

Conversational patterns, idioms, dialogues, and special vocabularies for daily life situations.
Category 1. 3 credits.

SP 211 Intermediate Spanish II

Prerequisite: SP 210 or equivalent

Continuation of SP 210.
Category 1. 3 credits.

SP 321 Advanced Spanish Composition I

Prerequisite: Two SP 200 level courses

Facility in prose reading and writing; study of style of selected authors; variety of expression through word discrimination, and advanced grammatical structures.
Category 3. 3 credits.

SP 322 Advanced Spanish Composition II

Prerequisite: SP 321 or equivalent

Continuation of SP 321.
Category 3. 3 credits.

SP 323 Spanish Conversation I

Prerequisite: Two SP 200 level courses

Intensive conversational practice for improving intonation, pronunciation, fluency, review of language usage.
Category 3. 3 credits.

SP 324 Spanish Conversation II

Prerequisite: SP 323 or equivalent

Continuation of SP 323.
Category 3. 3 credits.

SP 331 Spanish Civilization

Prerequisite: Two SP 200 level courses

An historical survey of Spanish social, cultural, and political life.
Category 3. 3 credits.

SP 332 The Hispanic World Today I

Prerequisite: Two SP 200 level courses

Social, economic and political institutions; value systems and customs. Conducted in Spanish.
Category 3. 3 credits.

SP 333 The Hispanic World Today II

Prerequisite: Two SP 200 level courses

Continuation of SP 332.
Category 3. 3 credits.

SP 341 Readings in Spanish Literature

Prerequisite: Two SP 200 level courses

Selected masterpieces from Middle Ages to present; social, cultural, and stylistic features of different periods. Recommended as a first course in Spanish literature.
Category 3. 3 credits.

SP 348 Contemporary Spanish Literature

Prerequisite: Two SP 200 level courses

Literary works from the generation of 1898 to the present.
Category 3. 3 credits.

SP 349 Spanish-American Literature

Prerequisite: Two SP 200 level courses

Representative works from South and Central American authors from the colonial period to the present.
Category 3. 3 credits.

SP 401 Advanced Study: Special Topics

Prerequisite: For advanced students

Special topics in language, literature, civilization or field work of mutual interest to student and instructor.
Category 3. 3 credits.

SP 402 Independent Study in Spanish

Prerequisite: Consent of instructor

Study of a special topic. Both content and eligibility are subject to departmental guidelines and approval.
Category 1. 1-6 credits.

SP 475 Internship in Spanish

Prerequisite: Consent of instructor and department

Provides majors practical experience in areas where their speaking, reading, and writing skills may be applied.
Category 1. 3 credits.

Note: Courses in other foreign languages such as German, Latin, Russian and Arabic are offered when demand warrants and staffing permits.

Mathematics and Computer Science

Computer Science

Charles J. Glassbrenner, Professor (1967)
B.S., M.S., Siena College; M.S., Northeastern University;
Ph.D., University of Connecticut

Mary Ann Hebhardt, Assistant Professor (1986)
B.S., Drexel University; M.C.S., North Carolina State University

David W. Hilton, Professor (1969)
B.S., Salem State College; Ed.M., Ph.D., Boston College

Alfred C. Johnson, Associate Professor (1979)
B.S., Worcester State College; M.A., Memphis State University

Michael E. Mulcahy, Associate Professor (1973)
B.S., Ed.M., Worcester State College; M.S., Worcester Polytechnic Institute

Virginia Z. Ogozalek, Professor (1982)
A.B., Colby College; M.S., University of Maine; M.S., Worcester Polytechnic Institute;
Ph. D. Northeastern University

Pre-admission Requirements for the Computer Science Major:

One year of differential and integral calculus, or the equivalent

MA 220 & MA 321	Discrete Mathematics I and II, or their equivalent
PY 271 & PY 272	Analog and Digital Electronics I and II **or**
PY 221 & PY 222	General Physics I and II

Requirements for a Major in Computer Science: 39 credits

Required Courses: 18 credits

CS 205	PASCAL Language Programming
CS 216	Advanced PASCAL
CS 310	Computer Organization and Assembly Language Programming
CS 385	Computer Architecture and Operating Systems
CS 361	Data Structures
CS 390	Database Design

Elective Courses: 21 credits in computer science courses at the 200-level or above including at least one course each at the 300- and 400-levels.

The Computer Science program offers three optional career preparation tracks: Computer Information Systems, Software Analysis and Design, and Scientific Programming. Students are encouraged to seek the advice of their faculty advisor in the selection of elective courses appropriate to each career track.

Requirements for a Minor in Computer Science: 18 credits in computer science which may include the following:

MA 440	Numerical Analysis
MA 498	Internship
CS 498	Internship

Computer Science Courses

CS 120 Microcomputer Applications in Business I

Learning state-of-the-art application packages including but not limited to word processing, file and database management systems and spreadsheets.
Category 1. 3 credits.

CS 125 Database Software

Learning state-of-the-art database applications packages such as DBASE or Ingress. Topics include database specification, data entry and report generation.
Category 3. 3 credits.

CS 205 PASCAL Language Programming

Using PASCAL to solve various business and scientific problems. Topics include input and output statements, control statements, arrays, subscripts, records, and sets.
Category 1. 3 credits.

CS 211 BASIC Programming Language

Basic computer operations, familiarization with equipment and terminology; programming in BASIC.
Category 1. 3 credits.

CS 212 Advanced BASIC

Prerequisite: CS 211

Advanced topics in BASIC including string functions, sequential and random access files, sorting and chaining. Programs will be written which relate to general applications.
Category 3. 3 credits.

CS 216 Advanced PASCAL

Prerequisite: CS 205

Advanced topics in PASCAL including files, data structures, recursion, sorting, and searching.
Category 1. 3 credits.

CS 221 Microcomputer Applications in Business II

Prerequisite: CS 120

Advanced features of application packages including but not limited to spreadsheets, file and database management systems, word processing, graphics and integration.
Category 3. 3 credits.

CS 231 COBOL Language Programming

Fundamentals of COBOL programming language, the purpose of each division, and how to write programs to solve business problems.
Category 1. 3 credits.

CS 232 RPG Language Programming

Fundamentals of RPG programming language; purposes and uses of the four basic RPG specification forms, and how to write programs to solve business problems using sequential file processing techniques.
Category 2. 3 credits.

CS 233 Advanced COBOL

Prerequisite: CS 231

Advanced aspects of COBOL programming language, table processing, sorting, indexed sequential and random access files, and master file updating.
Category 2. 3 credits.

CS 250 FORTRAN Language Programming

Mathematical and scientific problem solving using FORTRAN; real and integer arithmetic, DO-loops, basic FORMAT, subscripted variables, subroutines, and double precision.
Category 1. 3 credits.

CS 251 Advanced FORTRAN

Prerequisite: CS 250

Advanced programming techniques in FORTRAN; file manipulation, modular application techniques, COMMON and EQUIVALENCE statements, multiple entries and adjustable dimensions.
Category 3. 3 credits.

CS 280 Discrete Simulation and Modeling Techniques

Prerequisites: CS 216, MA 150

Introduction of a range of analytical and simulation modeling techniques covering queuing, inventory, allocation and scheduling situations. Application of discrete simulation of problems using GPSS and SPSS.
Category 3. 3 credits.

CS 285 "C" Language Programming

Prerequisite: CS 216

Introduction to the fundamentals of "C" programming language intended for use for systems programming and/or artificial intelligence.
Category 1. 3 credits.

CS 290 Data Communications Systems

Prerequisite: CS 216

Topics include transmission in computer systems, bandwidth, transmission rates, multiplexing, and common-carrier services.
Category 2. 3 credits.

CS 310 Computer Organization and Assembly Language Programming

Prerequisite: CS 205

Topics include assembly language programming, modern computer organization, memory addressing, variable and fixed length words, register use, and other non-privileged instructions.
Category 1. 3 credits.

CS 311 Advanced Assembly

Prerequisite: CS 310

This course is a continuation of CS 310. Assembler Language topics covered are MACROS, subprograms, operating systems, debugging, and special purpose instructions.
Category 3. 3 credits.

CS 315 Digital Logic Circuits

Prerequisite: MA 321

Topics include application of Boolean algebra to an analysis of combinatorial and sequential switching circuits. Characteristics of logic elements, memory devices, and logic circuits to accomplish code conversion.
Category 2. 3 credits.

CS 325 Programming Language Concepts

Prerequisite: CS 216

Topics include comparison of syntax and semantic descriptions, data types and control, operations and sequencing, ease of use, applicability, generality, non-procedurality, and efficiency.
Category 3. 3 credits.

CS 360 Human Factors in Computer System Design

Prerequisite: CS 285

Introduction to techniques for designing "user friendly" interfaces. Examines innovative technologies including touchscreens, speech recognition, multimedia and virtual reality.
Category 3. 3 credits.

CS 361 Data Structures

Prerequisite: CS 216

Advanced techniques for program constructions and testing are emphasized. Topics include linked lists, trees, sorting, searching, string manipulation, and dynamic storage allocation.
Category 1. 3 credits.

CS 371 Computability Theory

Prerequisites: CS 216, MA 321

Theory of computation, automata theory, recursive function theory, and formal grammars. Applications of finite automata theory to various areas of computer science will be considered.
Category 2. 3 credits.

CS 375 Business Systems Analysis and Design

Prerequisite: CS 231

All aspects of the analysis, design, and implementation of an application-oriented system (i.e., general ledger system, inventory control system, payroll system, or production control systems).
Category 2. 3 credits.

CS 380 System Programming

Prerequisite: CS 286

The design and implementation of assemblers, linkers, loaders, editors, and high level translation software. Algorithms solving specific problems of a system program are investigated.
Category 3. 3 credits.

CS 385 Computer Architecture and Operating Systems

Prerequisite: CS 361

Hardware and software as an integrated system; development of system software for process management, resource allocation, memory management and I/O processing.
Category 1. 3 credits.

CS 390 Database Design

Prerequisite: CS 361

The history and requirements of database development and maintenance; includes comparisons of commercially available models.
Category 1. 3 credits.

CS 410 Digital Computer Organization

Prerequisite: CS 315

A study of the internal structure of a typical digital computer from both a logical and a hardware viewpoint, memory devices, arithmetic, and control circuits including LSI and MSI components.
Category 2. 3 credits.

CS 430 Analysis of Algorithms

Prerequisite: CS 361

Teaching proven algorithmic techniques for solving problems and for determining the relative efficiency of different methods.
Category 3. 3 credits.

CS 450 Management and Information Systems

Prerequisite: CS 375

Use of computers in constructing an MIS system. Definition, design criteria, implementation considerations, and administration of the system.
Category 3. 3 credits.

CS 460 Artificial Intelligence

Prerequisite: CS 361

Introduction to central issues of constructing intelligence systems. Examines historical and future trends of AI research.
Category 3. 3 credits.

CS 470 Compiler Theory

Prerequisites: CS 371, MA 321

Methods of compiling a high-level language into assembly language; a simple compiler to translate a modified BASIC into an assembly language such as MIX will be designed and tested.
Category 3. 3 credits.

CS 497 Selected Topics in Computer Science

Prerequisites: CS 216

Selection of topics of mutual interest to students and faculty.
Category 3. 3 credits.

CS 498 Internship

Prerequisites: Approval by vote of Computer Science faculty; 21 credit hours in Computer Science courses including CS 361

Working in and for an organization where skills can be tested in real situations in order to gain experience, increase knowledge in various functional areas, and establish important contacts with an organization.
Category 1. 3 credits.

CS 499 Independent Study

Prerequisite: 18 credit hours in Computer Science including CS 361 and approval by vote of Computer Science faculty

An opportunity for advanced students to examine topics not normally taught in other mathematics or computer courses. Geared to interests of both the student and the instructor.
Category 1. 1-6 credits.

Mathematics

Bruce R. Henry, Assistant Professor (1990)
A.B., Dartmouth College; M.S., Ph.D., University of Wisconsin

W. Mack Hill, Professor (1972)
B.S., Wheeling College; M.S., Ohio State University; Ph.D., University of Cincinnati

Marshall J. Kotzen, Associate Professor (1969)
B.S., Tufts University; M.S., University of New Hampshire

Robert J. Perry, Professor (1964), Department Chair
A.B., M.A., Ph.D., Clark University

Robert W. Redding, Professor (1967)
B.S., University of Massachusetts; M.S., University of Rhode Island;
Ph.D., Clark University

Kenneth Schoen, Professor (1971)
A.B., University of Connecticut; M.A., Yale University; M.S., Rensselaer Polytechnic Institute; Ph.D., University of Pittsburgh

The department prepares its students for advanced study and research as well as for careers in actuarial science, business and industry, government and teaching.

Admission Requirements For The Mathematics Major: Good SAT scores, adequate high school background with at least average grades in mathematics and computer science courses.

Requirements for a Major in Mathematics: 39 credits

MA 200	Calculus I
MA 201	Calculus II
MA 220	Discrete Mathematics I
MA 305	Abstract Algebra
MA 310	Calculus III
MA 320	Ordinary Differential Equations
MA 330	Linear Algebra
MA 410	Advanced Calculus

Electives: minimum 12 credits in Mathematics 300-level and above

Students are encouraged to seek the advice of their faculty advisor in the selection of elective courses that will best prepare them for careers in teaching, actuarial science, engineering and/or architecture.

For Mathematics Teacher Certification students must also take:

MA340	Modern Geometry
MA360	Number Theory
MA380	Probability
MA381	Mathematical Statistics

Requirements for a Minor in Mathematics: 18 credits

MA 200	Calculus I
MA 201	Calculus II
MA 220	Discrete Mathematics I

7 credits in mathematics electives (excluding MA 099)

Math Lab: See page 16 for information in Math Lab services.

Mathematics Courses

MA 099 Developmental Mathematics (Housed in Math Lab)

A review of arithmetic and elementary algebra preliminary to MA 110. Three institutional credits, not counted toward degree.
Category 3.

MA 110 College Algebra (Housed in Math Lab)

Algebraic manipulation; exponents and radicals; linear, quadratic, polynomial, and simultaneous equations; inequalities, graphs, complex numbers, and other topics as time permits.
Category 1. 3 credits.

MA 120 College Trigonometry

Prerequisite: MA 110

Angle measurement, trigonometric functions and their graphs; identities, trigonometric equations, solutions of right triangles.
Category 1. 3 credits.

MA 130 Modern Mathematics for Elementary Majors

Mathematical concepts used in modern arithmetic textbooks; prepares prospective teachers of mathematics.
Category 2. 3 credits.

MA 140 Problem Solving

Develops skill in translating word problems into mathematical language, types of problems and basic relationships are discussed.
Category 2. 1 credit.

MA 150 Statistics I

Descriptive techniques, elementary probability, and introduction to statistical inference.
Category 1. 3 credits.

MA 160 Survey of Mathematics

Topics chosen to convey the flavor of mathematics; e.g. logic, set theory, probability, statistics, number theory.
Category 3. 3 credits.

MA 165 Business Math (Housed in Math Lab, Spring 1995)

Topics chosen from checking accounts, payroll, simple interest, notes, discount, interest, financial statements, retailing, and investments.
Category 1. 3 credits.

MA 190 Precalculus

Prerequisite: MA 110

Functions and graphs, trigonometric equations, complex numbers, vectors, polar coordinates, analytic geometry.
Category 1. 4 credits.

MA 200 Calculus I

Prerequisite: MA 190

Limits, differentiation and integration of algebraic and trigonometric functions, applications.
Category 1. 4 credits.

MA 201 Calculus II

Prerequisite: MA 200

Continuation of MA 200; differentiation and integration of transcendental functions, methods of integration, indeterminate forms, infinite series.
Category 1. 4 credits.

MA 202 Business Calculus

Prerequisite: MA 110

Limits, derivatives of algebraic functions, integration, applications.
Category 1. 4 credits.

MA 220 Discrete Mathematics

Sets, algorithms, directed graphs, relations, matrices, equivalence relations, partial orders, functions, logic, mathematic induction.
Category 1. 3 credits

MA 301 Statistics II

Prerequisite: MA 150

Continuation of MA 150; regression, correlation, Chi-square and contingency tables, analysis of variance and sampling techniques; computers may be employed.
Category 1. 3 credits

MA 305 Abstract Algebra

Prerequisite: MA 220

Sets, mathematical systems, groups, rings, fields.
Category 2. 3 credits.

MA 310 Calculus III

Prerequisite: MA 201

Continuation of MA 201: vectors, partial derivatives, multiple integration, and line integrals.
Category 1. 4 credits.

MA 320 Ordinary Differential Equations

Prerequisite: MA 310 (may be taken concurrently)

Techniques for the solution of first and higher order differential equations; also, as time permits, Laplace transforms and series solutions.
Category 1. 3 credits.

MA 321 Discrete Mathematics II

Prerequisite: MA 220

Continuation of MA 220; counting techniques, permutations, combinations, factorization, modular arithmetic, binary numbers, boolean algebra, recursion and recurrence relations, graphs and trees.
Category 1. 3 credits.

MA 325 Quantitative Methods

Prerequisite: MA 220

Matrices, mathematics of finance, linear programming, queuing theory, elementary game theory, inventory control models.
Category 2. 3 credits.

MA 330 Linear Algebra

Prerequisite: MA 220

Solutions of simultaneous equations by means of matrices and determinants; vector spaces, linear transformations; also, as time permits, characteristic values, bilinear and quadratic forms.
Category 1. 3 credits.

MA 338 Surveying

Prerequisite: MA 120

Use, care, and adjustment of surveying instruments, boundary surveys, horizontal and vertical curves, earthwork, and topography, field and laboratory work along with lectures.
Category 3. 3 credits.

MA 340 Modern Geometry

Prerequisite: MA 220

Topics from Euclidean and non-Euclidean geometry.
Category 2. 3 credits.

MA 350 History of Mathematics

Prerequisite: MA 220

Surveys the development of algebra, arithmetic, plane geometry and trigonometry by tracing certain fundamental concepts in mathematics from Euclid to the twentieth century.
Category 2. 3 credits.

MA 360 Number Theory

Prerequisite: MA 220

Divisibility properties of integers, prime numbers, the Euclidean algorithm, the unique factorization theorem, congruences, Diophantine equations, number theoretic functions.
Category 2. 3 credits.

MA 370 Actuarial Science

Prerequisite: MA 201

Theory of compound interest with applications to the solution of interest problems.
Category 2. 3 credits.

MA 375 Life Contingencies

Prerequisite: MA 370

A survey of the fundamental principles of life contingencies with applications to American life insurance practice.
Category 3. 3 credits.

MA 376 Combinatorial Mathematics

Prerequisite: MA 220

General counting methods, recurrence relations, graph theory, trees and search.
Category 2. 3 credits.

MA 380 Probability

Prerequisite: MA 310

Methods for interpreting results of experiments; distributions, probability, random variables, binomial probability, normal probability.
Category 2. 3 credits.

MA 381 Mathematical Statistics

Prerequisite: MA 380

Continuation of MA 380; sampling distribution, point and interval estimation, tests of hypotheses, regression, and correlation, analysis of variance, decision theory.
Category 3. 3 credits.

MA 410 Advanced Calculus

Prerequisite: MA 310

Rigorous treatment of sequences, topology of the real numbers, continuity; also, as time allows, differentiation, integration.
Category 3. 3 credits.

MA 440 Numerical Analysis

Prerequisites: MA 201, CS 205 or CS 250

Computer solutions to mathematical problems including root approximation, integration, differentiation, series, and systems of equations.
Category 2. 4 credits.

MA 450 Complex Variables

Prerequisite: MA 310

Theory of functions of complex variables; complex numbers, functions, limits and continuity, differentiation, Cauchy-Riemann Equations, Cauchy's Theorem, Taylor and Laurent series, residues and poles.
Category 3. 3 credits.

MA 460 Operations Research

Prerequisite: MA 310

Topics include formulation of linear optimization model, algebraic and geometric representation, simplex method, dynamic optimization models, probabilistic dynamic programming.
Category 3. 3 credits.

MA 497 Selected Topics in Mathematics

Prerequisite: MA 220

Selection of topics of mutual interest to students and faculty.
Category 3. 3 credits.

MA 498 Internship

Prerequisite: Consent of instructor

Working in and for an organization where one's skills can be tested in real situations. The purposes: opportunity to gain experience; to increase one's knowledge in various functional areas; and to establish important contacts with an organization.
Category 1. 3 credits.

MA 499 Independent Study

Prerequisite: Consent of Instructor

Offers advanced students an opportunity to examine topics not normally covered in other mathematics courses. Geared to interests of both the student and the instructor.
Category 1. 1-6 credits.

Nursing

Anne M. Brown, Professor (1977), Department Chair
R.N., St. Vincent Hospital; B.S., Worcester State College; M.S., Boston University; Ed.D., University of Massachusetts

Jean A. Campaniello, Professor (1979)
R.N., The Memorial Hospital, Worcester; B.S., Worcester State College; M.S., Boston University; C.A.G.S., Anna Maria College; Ed.D., University of Massachusetts

Stephanie M. Chalupka, Instructor (1991)
R.N., Quinsigamond Community College; B.S., Worcester State College; M.S., Boston College

Patricia A. DeAmicis, Instructor (1990)
B.S.N., Fitchburg State College; M.S.N., Boston College

Barbara Ann Giguere, Professor (1980)
R.N., Worcester City Hospital School of Nursing; B.S., Worcester State College; M.S., University of Connecticut; Ed.D., University of Massachusetts

Sandra A. Hall, Associate Professor (1985)
R.N., Cambridge City Hospital; B.S., M.S., Boston University

Mary L. Lovering, Professor (1974)
R.N., Mary Fletcher Hospital; B.S., Syracuse University; M.S., Boston College; Ed.D., University of Massachusetts

Ruth H. Robillard, Assistant Professor (1993)
B.S., University of Massachusetts—Lowell; M.S., Boston Unversity; Ed.D., University of Massachusetts

Audrey M. Silveri, Instructor (1992)
R.N., Mt. Wachusett Community College; B.S.N., Assumption College; M.S., Boston College

In compliance with policy of the Massachusetts State Board of Nursing, all applicants are informed that completion of the BSN degree does not guarantee admittance to the registered nurse licensure examination. Any individual who has been convicted of a felony involving acts likely to affect professional practice or whose ability to practice professional nursing is adversely affected by a physical or mental disability/illness which may endanger the health and safety of a person should seek special advising prior to enrolling in any professional nursing program in Massachusetts.

The Department of Nursing prepares men and women for the roles and responsibilities of professional nursing through a program leading to the Bachelor of Science in Nursing.

The program goals of the Department of Nursing are as follows:

1. Prepare graduates who are competent to meet the unique, complex and constantly changing nursing needs of society.
2. Support the mission and goals of the College.
3. Promote values and behaviors which encourage respect for diversity, acknowledge human worth and dignity, and are supportive of professional nursing practice.
4. Foster an appreciation for the necessity of learning and self-growth.
5. Contribute to the nursing profession and to society by engaging in scholarly and service activities.

Accredited by The National League for Nursing; member of The National League for Nursing (Council of Baccalaureate and Higher Degree Programs), Massachusetts Association of Colleges of Nursing, New England Organization for Nursing.

Graduates are eligible to write the examination for licensure as a registered nurse (R.N.) in Massachusetts or any other state in the United States. Successful completion of the National Council Licensure Examination in one state qualifies graduates to apply for licensure in any other state by endorsement.

General Information

The program has two tracks: Track One for students who have no educational background in nursing and Track Two for students with an associate's degree or diploma in nursing.

Pre-requisites to the major Track One: Completion of the following pre-requisite courses is required.

BI 161 & BI 162	Human Anatomy and Physiology I and II
CH 110 & CH 111	Introduction to General, Organic & Biochemistry I and II
EN 101 & EN 102	English Composition I and II
HE 120	Health and Nutrition
PS 110	General Psychology I **or**
PS 111	General Psychology II
SO 100	Introduction to Sociology

Students must earn a minimum GP of 2.0 in all required science courses. This excludes use of the pass/fail option for the courses. Students must also demonstrate competency in speech and computer applications or they will be advised to take said course(s).

The number of students who can be admitted to the program is limited; the College reserves the right to select applicants with the highest academic credentials.

Requirements for the Major Track One: 48 credits

NU 200	Introduction to Professional Nursing I
NU 210	Introduction to Professional Nursing II
NU 300	Introduction to Nursing Science
NU 310	Nursing Science I
NU 315	Group Communication Seminar I
NU 340	Nursing Science II
NU 415	Group Communication Seminar II
NU 430	Research Seminar
NU 440	Nursing Science III
NU 445	Group Communication Seminar III
NU 450	Leadership in Nursing
NU 460	Nursing Science IV

All nursing courses must be taken in sequence. Students must maintain a cumulative grade point average of 2.7 or higher in the major. Concurrent with their nursing courses, Track One students must complete ancillary requirements in other disciplines. Those courses are identified below as **corequisites** to nursing courses.

BI 204	Microbiology
BI 262	Pathophysiology
CH 240	Pharmacology
MA 150	Statistics I
PS 120	Human Development **or**
PS 210	Child Growth and Development
SO 215	Medical Sociology **or**
SO 220	Sociology of the Family

Admission Requirements Track Two: admission requires the completion of the following prerequisite courses:

EN 101 & EN 102	English Composition I and II
CH 110 & CH 111	Introduction to General, Organic & Biochemistry I and II
BI 161 & BI 162	Human Anatomy and Physiology I and II
BI 204	Microbiology
PS 110	General Psychology I
SO 100	Introduction to Sociology
PS 120	Human Development **or**
PS 210	Child Growth & Development
SO 215	Medical Sociology **or**
SO 222	Sociology of the Family
CH 240	Pharmacology
BI 262	Pathophysiology
HE 120	Health and Nutrition
MA 150	Statistics I

Students must earn a minimum GP of 2.0 in each required science course. This excludes use of the pass/fail option for the courses. Students must also demonstrate competency in speech and computer applications or they will be advised to take said course(s).

A formal application to the program should be made at the onset of the Spring semester during which the student anticipates completion of prerequisite courses. The number of students who can be admitted to the program is limited; the College reserves the right to select applicants with the highest academic credentials. Completion of prerequisites does not ensure admission to the program. Students may receive the equivalent of up to 19 credits for the successful completion of the nursing placement examinations.

Students must submit a photocopy of current license to practice nursing in the Commonwealth of Massachusetts.

Requirements for the Major Track Two: 48 credits

Nursing Placement Examinations	
NU 330	Introduction to Professional Nursing III
NU 315	Group Communication Seminar I
NU 340	Nursing Science II
NU 415	Group Communication Seminar II
NU 430	Research Seminar
NU 440	Nursing Science III
NU 445	Group Communication Seminar III
NU 450	Leadership in Nursing
NU 460	Nursing Science IV

All courses must be taken in sequence. Students must maintain a cumulative grade point average of 2.7 or higher in the major.

Progression

Information on progression prior to enrollment in NU 200 can be obtained in the Department of Nursing through the student's academic advisor. Progression in both Track I and Track II of the Nursing major is dependent upon the student's ability to maintain a cumulative GPA of 2.7 in the nursing courses.

Transfer Students and Advanced Standing: Students taking general education courses in another college or university are required to contact the Worcester State College Admissions Office regarding matriculation and the transferability of credit. Students will be given a list of recommended courses in which to enroll and helped to plan an entry date that will prevent undue loss of time in completing the degree requirements. The student with previous education and experience in nursing may be able to earn credit for selected nursing courses by examination. A combination of standardized tests and teacher-made tests which include both written and clinical evaluations are utilized.

Transfer students will not be permitted to pursue a Nursing major at Worcester State College if they have been enrolled previously in a nursing program and were not in good standing in that nursing program when they left. All transfer student applicants who have previously been enrolled in a nursing program must submit as part of their application a letter from the dean or director of the nursing program indicating eligibility status for readmission to that program.

The number of transfer students and advanced standing students admitted to the Nursing major will be determined by the availability of faculty, facilities, and the number of qualified continuing Worcester State College students. Transfer and advanced-standing students will be held to the same requirements and standards as those students admitted directly into the College as a Nursing major.

Non-nursing majors at Worcester State College wishing to apply to the nursing program must complete a change of major form. A formal application to the program should be made at the onset of the Spring Semester during which the student anticipates completion of prerequisite courses.

Clinical Course Requirements: Prior to registering for a clinical practicum course, students must submit written verification of having a negative result in a tuberculosis skin test or chest x-ray. Basic CPR certification must be achieved prior to enrollment in junior nursing courses. Recertification is necessary prior to enrollment in senior clinical courses. Nursing students are at risk for exposure to certain vaccine-preventable diseases and are required to obtain a varicella titre level as well as measles vaccine in combination with rubella and mumps vaccine prior to enrolling in clinical practicums. One dose of tetanus-diphtheria vaccine administered within 10 years prior to patient care activities is also required. Additionally, nursing majors are required to obtain vaccine for Hepatitis B. All nursing students must comply with immunization policies required in assigned clinical agencies.

The sequence of nursing courses provides learning experiences in all major clinical areas and in a variety of health-care institutions and facilities. Among others, clinical sites include Certified Nursing Services, Fallon Clinic, Homeless Outreach Advocacy Program, Millbury Society District Nursing, Providence House, St. Vincent Hospital, VNA of Central Massachusetts, Worcester Council on Aging, and Worcester Department of Public Health.

Requirements for graduation: For the Bachelor of Science Degree with a major in Nursing students must have:
— Completed all nursing courses with a cumulative GPA of 2.7 or higher
— Completed all College requirements

Since 1986, the Iota Phi Chapter of the National Honor Society for Nursing, Sigma Theta Tau, has selected members from the student body of Worcester State College on the basis of academic and personal criteria.

Nursing Courses

NU 100 Humanism in Health Care

Perception of health viewed from the perspective of person. Models of health care are explored.
Category 3. 3 credits.

NU 200 Introduction to Professional Nursing I

Prerequisites: BI 161/162; CH 110/111; EN 101/102; HE 120; PS110 or PS 111; SO 100; acceptance into Nursing major (track one)
Corequisites: BI 204, PS 120 or PS 210

Introduction to philosophy and conceptual framework of the program. Nursing theories and professional practice model are presented.
Category 1. 2 credits.

NU 210 Introduction to Professional Nursing II

Prerequisite: NU 200
Corequisites: BI 262, SO 215 or SO 220

Health of individuals and families is assessed. Communication, health assessment and other skills for professional practice are introduced.
Category 1. 2 credits.

NU 220 Current Concepts in Gerontological Nursing

Introduces the student to complex phenomenon that impact on the elderly population. Includes demographics, psychosocial issues, economic, political, and ethical issues.
Category 3. 3 credits.

NU 230 Introduction to Health Assessment

Theoretical and practicum components; introduces health care data collection skills including history-taking and physical assessment; emphasizes problem-oriented record system.
Category 1. 3 credits.

NU 300 Introduction to Nursing Science

Prerequisites: NU 200, NU 210

Nursing process is used as an organizing framework for diagnostic reasoning with well individuals across the life span.
Category 1. 3 credits.

NU 310 Nursing Science I

Prerequisites: NU 200, NU 210
Corequisites: CH 240, NU 300

Focus is on the study of the normal functioning patterns of the well individual and childbearing family.
Category 1. 8 credits.

NU 315 Group Communication Seminar I

Prerequisites: NU 300, NU 310

Provides the opportunity to experience group process by interacting with peers.
Category 1. 1 credit.

NU 330 Introduction to Professional Nursing III

Prerequisites: BI 161/162, CH 110/111, SO 100, SO 215 or SO 220, HE 120, BI 204, CH 240, BI 262, PS 110, PS 120, EN 101/EN 102 acceptance into Nursing major (track two)

The elements of the conceptual model of the Department of Nursing are studied in relation to professional nursing.
Category 1. 4 credits.

NU 340 Nursing Science II

Prerequisites: CH 240, NU 300, NU 310, or NU 330

Concepts of wellness, disease, and health behavior are examined as the nursing process is operationalized.
Category 1. 8 credits.

NU 400 Special Topics

Selected areas of interest to students and instructor. Topic, prerequisites and instructor are announced in advance.
Category 3. 3 credits.

NU 415 Group Communication Seminar II

Prerequisite: NU 315

The independent and interdependent role of the professional nurse as an agent of change is examined.

Category 1. 1 credit.

NU 430 Research Seminar

Prerequisites: MA 150, NU 340

The research process is examined and applied to clinical nursing practice.
Category 1. 3 credits.

NU 440 Nursing Science III

Prerequisite: NU 340

Students practice professional nursing with acutely ill adults and children in selected acute care settings.
Category 1. 8 credits.

NU 445 Group Communication Seminar III

Prerequisite: NU 415

The role of the professional nurse in decision making relating to the delivery of health care is explored.
Category 1. 1 credit.

NU 450 Leadership in Nursing

Prerequisite: NU 440

Selected theories and strategies of leadership and management are examined.
Category 1. 3 credits.

NU 460 Nursing Science IV

Prerequisite: NU 440

Students function collaboratively with health team members assisting clients during the restorative phase.
Category 1. 8 credits.

NU 480 Independent Study

Prerequisite: Consent of Department

Opportunities for students to engage in special studies in nursing according to individual interests and faculty availability.
Category 1. 1-6 credits.

Occupational Therapy

Occupational Therapy

Jacqueline R. Brennan, Assistant Professor (1987)
B.S., University of Connecticut; M.A. Assumption College;
M.S. in O.T., Sargent College

Deborah M. Dufresne, Assistant Professor (1987)
B.S., Worcester State College; M.S., O.T.R., Boston University

Alexis D. Henry, Assistant Professor (1989)
B.S., O.T.R., Tufts University, M.S., Boston University

Donna M. Joss, Professor (1983), Department Chair
B.A., University of Michigan; O.T.R., M.S., Ed.D., State University of New York, Buffalo

Catherine McNeil, Assistant Professor (1985)
B.A., University of California at Berkeley; O.T.R., M.S., Columbia University

Mark Rosenfeld, Assistant Professor (1993)
B.A., Colgate University; M.S., Columbia University; Ph.D., Union Institute

The Occupational Therapy program combines a strong background in the arts, humanities, and natural and social sciences with professional courses in the theory and practice of occupational therapy. The Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education. Graduates of the proram will be able to sit for the national certification examination for the occupational therapist administered by the American Occupational Therapy Certification Board. After successful completion of this examination, the individual will be an Occupational Therapist, Registered (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the AOTCB Certification Examination.

The Occupational Therapy program has two tracks: Track One for students who have no previous degree in occupational therapy, and Track Two for students with an associate's degree in occupational therapy and the COTA credential.

Track One requires completion of all of the following courses (Lower and Upper Division) with a grade of C or better:

Lower Division occupational therapy requirements (37 credits):

OT 100	Introduction to Occupational Therapy
PS 110	General Psychology I
PS 111	General Psychology II
PS 120	Human Development
BI 161	Human Anatomy and Physiology I
BI 162	Human Anatomy and Physiology II
OT 200	Occupational Therapy Intervention Techniques: Media I
OT 201	Occupational Therapy Intervention Techniques: Media II
OT 230	Communication and Group Process in Occupational Therapy
BI 171	Kinesiology
NS/BI 315	Neuroanatomy and Physiology

Upper Division Occupational Therapy requirements (38 credits):

Note: Courses must be taken in sequence, i.e. all 300 level courses must be completed before 400 level courses are begun.

OT 303	Human Performance, Occupation, and the Activities Process
OT 305	Health and Illness: Physiological
OT 310	Occupational Therapy Methods with Developmental Problems I
OT 311	Practicum in Developmental Problems I
OT 315	Health and Illness: Psychosocial
OT 320	Occupational Therapy Methods with Developmental Problems II
OT 321	Practicum in Developmental Problems II
OT 405	Methods of Occupational Therapy Practice with Physiology Diagnoses
OT 406	Practicum in Occupational Therapy with Physiological Diagnoses
OT 410	Organization and Administration of Occupational Therapy Services
OT 412	Research Methods in Occupational Therapy
OT 415	Methods of Occupational Therapy Practice with Psychosocial Diagnoses
OT 416	Practicum in Occupational Therapy Methods with Psychosocial Diagnoses
OT 420	Methods of Facilitating Therapeutic Adaptation
OT 425	Seminar in Occupational Therapy

Ancillary requirements (6 credits):

MA I50	Statistics I
CS 120	Microcomputer Applications in Business I (or comparable computer science course)

Track Two requires completion of all of the following courses (Lower and Upper Division) with a grade of C or better:

Lower Division occupational therapy requirements (I8 credits):

OT 230	Communication and Group Process in Occupational Therapy
BI 161	Human Anatomy & Physiology I
BI 162	Human Anatomy & Physiology II
BI 171	Basic Kinesiology
NS/BI 315	Neuroanatomy and Physiology

Upper Division Occupational Therapy requirements (30 credits):

Note: Courses must be taken in sequence, i.e. all 300 level courses must be completed before 400 level courses are begun.

OT 303	Human Performance, Occupation, and the Activity Process
OT 305	Health and Illness: Physiological
OT 312	Occupational Therapy Methods with Developmental Problems I (Accelerated)
OT 315	Health and Illness: Psychosocial
OT 325	Occupational Therapy Methods with Developmental Problems II (Accelerated)
OT 407	Occupational Therapy Methods with Physiological Diagnoses (Accelerated)
OT 410	Organization and Administration of Occupational Therapy Services
OT 412	Research Methods in Occupational Therapy
OT 417	Occupational Therapy Methods with Psychosocial Diagnoses (Accelerated)
OT 420	Methods of Facilitating Therapeutic Adaptation
OT 425	Seminar in Occupational Therapy

Ancillary requirements (6 credits)

MA 150	Statistics I
CS 120	Microcomputer Applications in Business I (or comparable computer science course)

Eligibility for the national certification examination requires successful completion of six months of level II Fieldwork (OT 450 and OT 45l). No student will be allowed to begin Level II Fieldwork until all other coursework required for the BS is completed and all other required occupational therapy courses have been completed with a grade of C or better.

Students should be prepared to accept and assume the responsibility for transportation to Level I and Level II Fieldwork placements in geographic areas outside the Worcester area.

Occupational Therapy Courses

OT 100 Introduction to Occupational Therapy

An introductory survey of occupational therapy: history, theory, literature, terminology, areas of practice, interdisciplinary relationships, current trends and future directions.
Category 1. 3 credits.

OT 200 Occupational Therapy Intervention Techniques: Media I

Prerequisite: OT 100

An introduction to the use of activities as therapeutic media in occupational therapy. Activity procedures, equipment, supplies, teaching methods, activity adaptation, and application to clinical situations; leather and ceramics.
Category 1. 2 credits.

OT 201 Occupational Therapy Intervention Techniques: Media II

Prerequisite: OT 100, OT 200

A continuation of the exploration of activities as therapeutic media. Procedures, equipment, supplies, teaching methods, activity adaptation and analysis and adaptation to clinical situations; wood and fibers.
Category 1. 2 credits.

OT 230 Communication and Group Process in Occupational Therapy

Prerequisite: OT 100

A survey of theories of communication and group process and their application to occupational therapy. Therapeutic uses of the individual, dyads and groups.
Category 1. 3 credits.

THE FOLLOWING COURSES ARE OPEN ONLY TO STUDENTS WHO HAVE BEEN ACCEPTED INTO THE OCCUPATIONAL THERAPY PROGRAM.

OT 303 Human Performance, Occupation, and the Activity Process

Prerequisites: OT 200, OT 201, OT 230

Investigation and application of theories basic to occupational therapy practice, including those related to human performance, occupation, adaptation, and the therapeutic use of purposeful activity.
Category 1. 3 credits.

OT 305 Health and Illness: Physiological

Prerequisites: OT 200, OT 201, OT 230

Concepts of health and illness; methods of physiological health promotion and protection; characteristics and psychosocial implications of physiological conditions encountered in occupational therapy practice.
Category 1. 3 credits.

OT 308 Clinical Applications in Neuroscience for Occupational Therapy

Prerequisites: BI 161, BI 162, BI 171, NS/BI 315

Structure, function and dysfunction of the human nervous system in relation to specific pathologies commonly encountered in a clinical setting.
Category 3. 1 credit.

OT 310 Occupational Therapy Methods with Developmental Problems I

Prerequisites: OT 200, OT 201, OT 230, BI 171, NS/BI 315
Corequisite: OT 311

Theories and techniques of assessment and intervention with problems of development affecting sensorimotor, cognitive, and psychosocial function in neonatal to adolescent populations.
Category 1. 3 credits.

OT 311 Practicum in Developmental Problems I

Corequisite: OT 310

Supervised clinical observation and participation in assessment and intervention approaches to developmental problems in the neonatal through adolescent age group.
Category 1. 1 credit.

OT 312 Occupational Therapy Methods with Developmental Problems I: Accelerated

Prerequisites: BI 171, NS/BI 315

An accelerated course in occupational therapy approaches to developmental problems in neonatal to adolescent populations. Structured specifically for the student with an associate's degree in occupational therapy. Includes practicum.
Category 1. 2 credits.

OT 314 Occupational Therapy Intervention with the Infant Population and in the Public Schools

Prerequisites: OT 310 or OT 312

Role of the Occupational Therapist in a nonmedical setting, assessment and treatment of children birth to 21 years, educational goal setting.
Category 3. 3 credits.

OT 315 Health and Illness: Psychosocial

Prerequisite: OT 200, OT 201, OT 230

Concepts of psychosocial health and illness; the role of occupational therapy in the promotion of psychosocial health; characteristics of psychosocial diagnoses commonly encountered in occupational therapy.
Category 1. 3 credits.

OT 320 Occupational Therapy Methods with Developmental Problems II

Prerequisites: OT 310, OT 311
Corequisite: OT 321

Theories and techniques of assessment and intervention with problems of development affecting sensorimotor, cognitive and psychosocial function in young adult through elder populations.
Category 1. 3 credits.

OT 321 Practicum in Developmental Problems II

Prerequisites: OT 310, OT 311
Corequisite: OT 320

Supervised clinical observation and participation in evaluation and intervention approaches to adult developmental problems.
Category 1. 1 credit.

OT 325 Occupational Therapy Methods with Developmental Problems II: Accelerated

Prerequisite: OT 312

An accelerated course in occupational therapy approaches to developmental problems in young adult through elder populations. Structured specifically for students with an associate's degree in occupational therapy. Includes practicum.
Category 1. 2 credits.

OT 400 Special Topics

Selected areas of interest to students and instructor. Topic, prerequisites and instructor are announced in advance.
Category 3. 3 credits.

OT 405 Methods of Occupational Therapy Practice with Physiological Diagnoses

Prerequisites: OT 303, OT 305, OT 320, OT 321, NS/BI 315
Corequisite: OT 406

Techniques of therapeutic intervention, adaptation, health maintenance and prevention of dysfunction applied to physiological diagnoses. Includes methods of assessment, treatment planning, implementation and documentation.
Category 1. 3 credits.

OT 406 Practicum in Occupational Therapy with Physiological Diagnoses

Corequisite: OT 405

Directed observation and participation in the clinical application of theories and methods of occupational therapy intervention with physiological diagnoses.
Category 1. 1 credit.

OT 407 Occupational Therapy Methods with Physiological Diagnoses: Accelerated

Prerequisites: OT 312, OT 325

An accelerated course in occupational therapy assessment and treatment approaches with physiological diagnoses. Structured specifically for the student with an associate's degree in occupational therapy. Includes practicum.
Category 1. 2 credits.

OT 410 Organization and Administration of Occupational Therapy Services

Prerequisites: OT 320 and OT 321, or OT 325

Introduction to principles of organization, administration and management applied to the delivery of occupational therapy services; inter- and intradisciplinary relationships and patterns of organization of health delivery systems.
Category 1. 3 credits.

OT 412 Research Methods in Occupational Therapy

Prerequisite: MA 150

A review and analysis of historical and current research in occupational therapy and of methods of research appropriate to clinical situations.
Category 1. 3 credits.

OT 415 Methods of Occupational Therapy Practice with Psychosocial Diagnoses

Prerequisites: OT 315, OT 320 and OT 321, or OT 325
Corequisite: OT 416

Investigation of occupational therapy for a variety of psychosocial diagnostic categories. Methods of prevention health maintenance, adaptation and intervention; assessment, program planning, implementation and documentation are explored.
Category 1. 3 credits.

OT 416 Practicum in Occupational Therapy Methods for Psychosocial Diagnoses

Corequisite: OT 415

Directed observation and participation in the clinical application of theories and methods of occupational therapy intervention with psychosocial disorders.
Category 1. 1 credit.

OT 417 Occupational Therapy Methods with Psychosocial Diagnoses: Accelerated

Prerequisite: OT 325

An accelerated course in occupational therapy assessment and treatment approaches with psychosocial diagnoses. Structured specifically for the student with an associate's degree in occupational therapy. Includes practicum.
Category 1. 2 credits.

OT 420 Methods of Facilitating Therapeutic Adaptation

Prerequisites: OT 405 and OT 406, or OT 407

Introduction to the design, fabrication, and use of adapted clothing and equipment, assistive devices, orthotics, and prosthetics; principles of architectural and environmental adaptation.
Category 1. 3 credits.

OT 422 Introduction to Hand Management

Prerequisites: OT 311, OT 320, OT 405

Examination and application of specific evaluation and treatment approaches in the management of hand and upper extremity dysfunctions.
Category 3. 3 credits.

OT 425 Seminar in Occupational Therapy

Prerequisites: Status of occupational therapy senior, consent of instructor

An extensive investigation of occupational therapy as a discipline, its historical, social, theoretical and philosophical bases, and the roles and responsibilities of entry level and experienced therapists.
Category 1. 4 credits.

OT 450 Level II Fieldwork: First Placement

Prerequisites: Satisfactory completion of coursework required for graduation with a BS degree or second major in occupational therapy

Three months of full-time clinical occupational therapy experience in a setting treating primarily physiological problems. Supervised by experienced clinical occupational therapy faculty.
Category 1. 6 credits.

OT 451 Level II Fieldwork: Second Placement

Prerequisite: Satisfactory completion of coursework required for graduation with a BS degree or second major in occupational therapy

Three months of full-time clinical occupational therapy experience in a setting treating primarily psychosocial or developmental problems. Supervised by experienced clinical occupational therapy faculty.
Category 1. 6 credits.

OT 452 Level II Fieldwork: Third Placement

Prerequisite: Satisfactory completion of OT 450, OT 451, permission of fieldwork coordinator

An optional two or three months of full-time clinical occupational therapy experience in a specialty area of practice. Supervised by experienced clinical occupational therapy faculty.
Category 1. 6 credits.

Physical Therapy

The physical therapy curriculum will be four and one-half years in length and lead to a Bachelor of Science in Physical Therapy. The curriculum will be built around a core of liberal arts and science courses to assure that graduate are prepared to function as knowledgeable, contributing citizens of the world with an understanding of its histories, cultures and environments, and to develop an understanding of the biological and psychological sciences as a foundation for professional courses.

Professional courses will emphasize the comprehension, analysis and application of the knowledge, skills and values necessary to the practice of physical therapy. Learning experiences, including laboratories and fieldwork, are designed to foster critical thinking and communication skills and to help students advance toward greater self-direction in learning.

The process of establishing accreditation for the program will begin fall l994. It is anticipated that the program will be reviewed for accreditation in the fall of l998.

Philosophy

Neil F. Brophy, Assistant Professor (1971)
A.B., Assumption College; M.A., Laval University

Gerald Robbins, Associate Professor (1971)
A.B., Rutgers University; M.A., New School for Social Research

Courtney D. Schlosser, Professor (1971)
A.B., George Washington University; Ed.M., Ed.D., Boston University

Donald F. Traub, Professor (1969), Department Chair
A.B., Iona College; M.A., St. John's University (New York); M.A., Ph.D., Boston College

The purpose of philosophy is the development of a free, responsible and civilized person with a critical and humane intelligence. To achieve this objective the student studies the major philosophers in the ancient, medieval, modern and contemporary periods, and the basic problems (political, social, moral and metaphysical) concerning human nature and destiny.

Requirements for a Minor in Philosophy: 18 credits including

PH 120	History of Western Philosophy
PH 140	Philosophy of Science, Nature, and Man

Philosophy Courses

PH 100 Introduction to Philosophy

The fundamentals of philosophy: its vocabulary, problems, and methods.
Category 1. 3 credits.

PH 110 Introduction to Logic

The basic principles of rational argumentation and critical thinking.
Category 1. 3 credits.

PH 120 History of Western Philosophy

The development of philosophy in the Western World from the ancient Greeks to the twentieth century.
Category 1. 3 credits.

PH 130 Ethics: Human Conduct and Values

The nature of morality and value and their place in the world of human action.
Category 1. 3 credits.

PH 140 Philosophy of Science, Nature, and Man

A philosophical examination of the relation between man and the world as exemplified in science.
Category 1. 3 credits.

PH 200 Philosophy of Being, Knowledge, and God

A critical evaluation of answers to the most general questions of human existence: What is there? How do we know it? How did it come to be?
Category 2. 3 credits.

PH 210 Existentialism and Contemporary Philosophy

An in-depth study of the continental tradition in philosophy.
Category 2. 3 credits.

PH 220 History of American Philosophy

A general overview of the American contribution to the development of Western Philosophy.
Category 2. 3 credits.

PH 230 Religious Philosophies, East and West

An examination of the major religious systems, both oriental and occidental.
Category 2. 3 credits.

PH 300 Philosophy of History

Prerequisite: One semester of philosophy

A study of the meaning and value of history for human life.
Category 3. 3 credits.

PH 310 Philosophy of Art

Prerequisite: One semester of philosophy

An investigation of the nature of aesthetic experience.
Category 3. 3 credits.

PH 320 Philosophy of Education

Prerequisite: One semester of philosophy

A philosophical critique of current educational practices in light of the generally accepted purposes of education.
Category 3. 3 credits.

PH 330 Philosophy, Human Potentiality and Consciousness

Prerequisite: One semester of philosophy

The application of philosophical knowledge to the problems of creative self-actualization and consciousness.
Category 3. 3 credits.

PH 400 Seminar: Topics in Philosophy

Prerequisite: One semester of philosophy

Specific subject matter chosen by the department in conjunction with student need and demand.
Category 3. 3 credits.

PH 410 Independent Study in Philosophy

Prerequisite: Consent of instructor

Tutorials in areas of philosophy not covered in other course offerings.
Category 1. 1-6 credits.

Physical and Earth Sciences

Engineering Science Transfer Programs

In cooperation with the University of Massachusetts - Dartmouth, the University of Massachusetts - Lowell and Worcester Polytechnic Institute, the College offers engineering science transfer programs for students interested in obtaining a bachelor's degree in engineering.

Students completing the first two years of the prescribed program at Worcester State College with a grade point average of 3.0 or above will be guaranteed admission to the University of Massachusetts - Dartmouth as juniors in the Civil, Electrical, or Mechanical Engineering Programs.

Students completing the first two years of the prescribed program at Worcester State College with a grade point average of 3.0 or above will be guaranteed admission to the University of Massachusetts - Lowell as juniors in the Chemical, Civil, or Mechanical Engineering Programs.

The Worcester State College/Worcester Polytechnic Institute Engineering Program is a five year plan (three years at WSC and two years at WPI). Interested students must be full-time freshmen at Worcester State College and must apply to Worcester Polytechnic Institute before March 1 of their freshman year. Accepted students are assigned an advisor at each college. Together the advisors guide the student in the selection of courses to meet the requirements for transfer to Worcester Polytechnic Institute.

Requirements for the Program in Civil Engineering at the University of Massachusetts - Dartmouth:

First Year

Fall		***Spring***	
EN 101	English Composition I	EN 102	English Composition II
MA 200	Calculus I	MA 201	Calculus II
PY 241	Physics I	PY 242	Physics II
CH 120	General Chemistry I	CH 121	General Chemistry II
	Humanities Elective		Humanities Elective

Second Year

Fall		***Spring***	
MA 310	Calculus III	CS 250	FORTRAN
MA 338	Surveying	PY 312	Mechanics II
PY 311	Mechanics I	MA 320	Ordinary Differential Equations
EN 252	Technical Writing	PY 350	Thermodynamics
	Social Science Elective		Social Science Elective
			Free Elective

To be taken at the University of Massachusetts - Dartmouth (summer) or the University of Massachusetts - Lowell or through the Consortium:

CEN 252	Ethics, Technical Report
CEN 302	Mechanics of Materials

Requirements for the Program in Electrical Engineering at the University of Massachusetts - Dartmouth:

First Year

Fall		***Spring***	
EN 101	English Composition I	EN 102	English Composition II
MA 200	Calculus I	MA 201	Calculus II
PY 241	Physics I	PY 242	Physics II
CH 120	General Chemistry I	CH 121	General Chemistry II
	Humanities Elective		Humanities Elective

Second Year

Fall		***Spring***	
CS 205	PASCAL Language Programming	CS 385	Computer Architecture & Operating Systems
CS 315	Digital Logic Circuits	MA 320	Ordinary Differential Equations
MA310	Calculus III		Humanities Elective
EN 252	Technical Writing		Free Elective
PY 310	Modern Physics	PY 350	Thermodynamics
	Social Science Elective		Social Science Elective

To be taken at the University of Massachusetts - Dartmouth (summer) or the University of Massachusetts - Lowell or through the Consortium:

ECE 201, 202 Elements of Electrical Engineering I, II and ECE 251, 252 Electrical Measurements Lab I, II

Requirements for the Program in Mechanical Engineering at the University of Massachusetts - Dartmouth:

First Year

Fall		***Spring***	
EN 101	English Composition I	EN 102	English Composition II
MA 200	Calculus I	MA 201	Calculus II
PY 241	Physics I	PY 242	Physics II
CH 120	General Chemistry I	CH 121	General Chemistry II
	Humanities Elective		Humanities Elective

Second Year

Fall		***Spring***	
	Elective	MA 320	Ordinary Differential Equations
EN 252	Technical Writing	PY 350	Thermodynamics
MA 310	Calculus III	CS 205	PASCAL Language Programming
PY 243	Physics III	PY 312	Mechanics II
PY 311	Mechanics I		Social Science Elective
			Free Elective

To be taken at the University of Massachusetts - Dartmouth (summer) or University of Massachusetts - Lowell or through the Consortium:

MNE 252 Mechanics of Materials I

Requirements for the Program in Chemical Engineering at the University of Massachusetts - Lowell:

First Year

Fall		***Spring***	
EN 101	English Composition I	EN 102	English Composition II
MA 200	Calculus I	MA 201	Calculus II
PY 241	Physics I	PY 242	Physics II
CH 120	General Chemistry I	CH 121	General Chemistry II
	Humanities Elective		Humanities Elective

Second Year

Fall		*Spring*	
CH 201	Organic Chemistry I	CH 202	Organic Chemistry II
CH 203	Organic Chemistry Laboratory I	CH 204	Organic Chemistry Laboratory II
MA 310	Calculus III	EC 110	Introduction to Microeconomics
CS 250	FORTRAN	MA 320	Ordinary Differential Equations
	Technical Elective		Technical Elective
	Physical Education		Physical Education

To Be Taken at University of Massachusetts - Lowell (summer) or through the Consortium:

25.101	Introduction to Engineering Design and Graphics
10.203	Chemical Engineering Calculations I
10.204	Chemical Engineering Calculations II
10.206	Fluid Mechanics
10.207	Computer Programming for Chemical Engineering

Course to be taken at the University of Massachusetts - Lowell in the junior year in place of humanities elective: 14.217 Statics of Strength Materials.

Technical electives in the above program may not be substituted for University of Massachusetts - Lowell senior level technical electives.

Students completing the above program at Worcester State College with a grade point average of 3.0 or above will be guaranteed admission to the Chemical Engineering Program at the University of Massachusetts - Lowell as juniors. Students with a GPA of 2.5 to 2.999 will be admitted to the program on a space available basis.

Requirements for the Program in Civil Engineering at the University of Massachusetts - Lowell:

First Year

Fall		*Spring*	
EN 101	English Composition I	EN 102	English Composition II
MA 200	Calculus I	MA 201	Calculus II
PY 241	Physics I	PY 242	Physics II
CH 120	General Chemistry I	CH 121	General Chemistry II
	Humanities elective		Humanities elective

Second Year

Fall		*Spring*	
PY 361	Statics	MA 381	Mathematical Statistics
MA 338	Surveying	EN 252	Technical Writing
MA 310	Calculus III	MA 320	Ordinary Differential Equations
CS 250	FORTRAN	EC 120	Introduction to Macroeconomics
	Social Science elective		Social Science elective
	Physical Education		Physical Education

To Be Taken At University of Massachusetts - Lowell (summer) or through the Consortium: 14.204 Strength of Materials and 25.101 Introduction to Engineering Design and Graphics

Course to be taken at the University of Massachusetts - Lowell in the junior year in place of humanities elective: 14.226 Surveying II

Students completing the above program at Worcester State College with a grade point average of 3.0 or above will be guaranteed admission to the Civil Engineering Program at the University of Massachusetts - Lowell as juniors. Students with a GPA of 2.5 to 2.999 will be admitted to the program on a space available basis.

Requirements for the Program in Mechanical Engineering at the University of Massachusetts - Lowell:

First Year

Fall		***Spring***	
EN 101	English Composition I	EN 102	English Composition II
MA 200	Calculus I	MA 201	Calculus II
PY 241	Physics I	PY 242	Physics II
CH 120	General Chemistry I	CH 121	General Chemistry II
	Humanities elective		Humanities elective

Second Year

Fall		***Spring***	
PY 361	Statics	PY 331	Electricity and Magnetism I
EN 252	Technical Writing	MA 320	Ordinary Differential Equations
MA 310	Calculus III	PY 362	Dynamics
PY 243	Physics III	CS 250	FORTRAN
PY 311	Mechanics I		Physical Education
	Physical Education		

To Be Taken At University of Massachusetts - Lowell (summer) or through the Consortium: 22.212 Mechanics of Materials II, 22.242 Thermodynamics, and 25.101 Introduction to Engineering Design and Graphics

Courses to be taken at the University of Massachusetts - Lowell in the junior year in place of humanities electives: 16.211, Fundamentals of Electricity and 22.295, Material Science.

Students completing the above program at Worcester State College with a grade point average of 3.0 or above will be guaranteed admission to the Mechanical Engineering Program at the University of Massachusetts - Lowell as juniors. Students with a GPA of 2.5 to 2.999 will be admitted to the program on a space available basis.

Geography and Earth Sciences

Richard G. Hunt, Associate Professor (1969)
B.S., Indiana University of Pennsylvania; M.S., Southern Connecticut State University

Ronald W. Hurd, Associate Professor (1970)
B.S., Ed.M., Worcester State College

Robert E. Lingner, Associate Professor (1968)
A.B., Clark University; M.A., University of Maine

James V. Lyons, Assistant Professor (1989)
B.A., George Washington University; M.S., State University of New York, New Paltz; M.A., State University of New York, Binghamton; M.A., Clark University

Robert W. Thompson, Associate Professor (1968)
B.S., Worcester State College; M.A., Clark University

Geography is concerned with the interrelationships of man in his environment. It is a dynamic discipline investigating processes in the physical environment and analyzing the location of man's economic, political, and social activities. Students learn to use tools for analysis of contemporary problems in environmental systems. The program in Geography and Earth Sciences offers a number of courses leading to a major in the field of geography. A minor in Geography and a concentration in Geography and Environmental Studies are available to interested students. Gamma Theta Upsilon, the national honor society in geography, is available to distinguished majors.

Requirements for a Major: 30 credits including

GS 101	Physical Geography: The Physical Environment
GE 102	Cultural Geography: The Cultural Environment
GS 140	Physical Geology
GE 210	Geography of North America

One course in cartography

At least one advanced course in each of the following areas:
Physical Geography
Cultural Geography
Regional Geography and
Two geography electives

No more than 45 credits will be accepted toward the degree without the consent of the department. Students may pursue a concentration in either Physical or Cultural Geography by completing the basic requirements and completing 18 credits in the discipline.

Requirements for a Minor: 18 credits including

GS 101	Physical Geography: The Physical Environment
GE 102	Cultural Geography: The Cultural Environment
GE 210	Geography of North America

One elective each in physical, cultural, and regional geography

Geography and Earth Sciences Courses

GS 101 Physical Geography: The Physical Environment

Geographic principles of location; characteristics of landforms, soil, climate, minerals, water, flora, and fauna.
Category 1. 3 credits.

GE 102 Cultural Geography: The Cultural Environment

Man-land relationships. Cultural changes in regions; location, characteristics of various cultural elements: population, economic activities, languages, religious, urbanization, and political patterns.
Category 1. 3 credits.

GS 105 New England Landscape

Analysis of the geological backgrounds of New England's distinctive scenery. Includes study of bedrock base, glacial features, coastline, and mountains.
Category 1. 3 credits.

GS 106 Central Massachusetts Geology Workshop

Chiefly a field investigation of nearby bedrock and landscape features. Survey of maps, literature, and other resources on local geology.
Category 1. 3 credits.

GE 110 World Regional Geography I

This survey examines characteristics of land and peoples of Europe, the Middle-East, and the USSR with emphasis on landscapes and cultures.
Category 3. 3 credits.

GE 111 World Regional Geography II

Analysis of the physical, cultural, and economic regions of the Orient, Asia, Africa, Australia, and the Americas.
Category 3. 3 credits.

GE 135 Geography of Wine

The cultivation of grapes and their manufacture into wine. Regional stress. Western Europe and the United States.
Category 1. 3 credits.

GS 140 Physical Geology

Introduction to geological science: rocks and minerals, internal and external geologic processes, topographic map and air photo analysis, local field study. Three lecture hours and two laboratory hours per week.
Category 1. 4 credits.

GS 205 Meteorology

Weather elements, frontal storms, air mass characteristics, winds, temperature, precipitation, and pressure patterns throughout the world; weather instruments, forecasting.
Category 1. 3 credits.

GE 210 Geography of North America

Manufacturing, agriculture, and trade in the various regions of the continent. Land utilization as affected by the physical environment.
Category 1. 3 credits.

GS 215 Geology of the National Parks

Prerequisites: GS 101, GS 120

Examination of the natural features located in each park and of the earth processes which formed them.
Category 2. 3 credits.

GS 220 Earth History

Prerequisite: GS 120

Historical evolution of the earth, its surface features, and life forms through geologic time. Emphasis on the North American continent.
Category 2. 3 credits.

GS 225 Oceanography

The principles of physical, chemical, biological, and geological oceanography.
Category 1. 3 credits.

GE 230 Geography of Europe

European landforms, people, culture, economics, and problems facing the individual countries.
Category 1. 3 credits.

GS 250 Hydrology

Physical, economic, political, and social problems in water resource planning are considered in a simulation context.
Category 3. 3 credits.

GE 260 Geography of South America

Physical, economic, social, and cultural analysis of the individual countries: historical background to present-day development.
Category 2. 3 credits.

GE 270 Geography of Middle America

Prerequisites: GS 101, GE 102

Present growth and trends in Middle-America and the Caribbean realm as related to the landscape and culture of the people.
Category 2. 3 credits.

GE 280 Geography of Manufacturing

A systematic study of the spatial distribution of manufacturing activities; analysis of their locations employing industrial location theory.
Category 1. 3 credits.

GE 285 Economic Geography

Geographic factors contributing to the localization of economic activities are analyzed. Distribution, production, and trade are considered.
Category 2. 3 credits.

GE 290 Conservation and Natural Resource Management

Problems in resource management are analyzed from a physical, social, economic, and political perspective. Theory and applied examples are considered.
Category 3. 3 credits.

GE 300 Problems in Energy Resources

Prerequisite: GS 101

Contemporary problems of energy resources; emphasis on supply, demand, and availability of alternative energy resources.
Category 3. 3 credits.

GS 305 Geological Hazards

Prerequisite: GS 101 or GS 120

The modern theory of plate tectonics as an explanation for earthquakes and volcanic eruptions; impact of and societal response to such events.
Category 2. 3 credits.

GS 310 Geomorphology

Prerequisite: GS 101 or GS 120

A study of landscapes and the natural forces that shape them. Influences of man's activities and role of climate stressed.
Category 3. 3 credits.

GS 311 Regional Geomorphology of the United States

Prerequisite: GS 120 or GS 310

Study of selected regions of our country with respect to underlying geology and resulting landscape features. Considerable map study included.
Category 2. 3 credits.

GS 316 Computer-Aided Cartography and Graphics

Production of graphs and maps using the line printer, plotter, digitizer, interfaced with Tektronix, and IBM-PC equipment.
Category 3. 3 credits.

GS 320 Climatology

Prerequisite: GS 101

Characteristics of the atmosphere; climates of the continents and classification of the world's climates.
Category 3. 3 credits.

GS 325 Glacial Geology

Prerequisite: GS 120

Glaciers and their dynamics; investigation of the Quaternary Ice Age and its profound effects on world scenery.
Category 2. 3 credits.

GE 330 Geography of Asia

Prerequisite: Consent of instructor

Physical and cultural environmental analysis: rapid changes, developments of recent origin, and problems facing the individual countries.
Category 3. 3 credits.

GE 340 Urban Geography: The Urban Environment

Prerequisite: GE 102

World urbanization, location, and central place concepts, economy of cities, land use patterns, urban, physical, and societal environmental problems.
Category 1. 3 credits.

GE 345 Geography of Africa

Prerequisite: Consent of instructor

Africa divides into north Africa, Saharan Africa and southern Africa. Study of lands, peoples, cultures, economics, political and future problems.
Category 3. 3 credits.

GE 350 Introduction to Urban and Regional Planning

Prerequisite: GE 102

Understanding of purpose, function, tools and methodology of urban and regional planning; focus on land-use planning, land-use controls and model plans.
Category 2. 3 credits.

GS 351 Introduction to Cartography

Prerequisite: GS 101

Theory and construction of maps, charts, and diagrams.
Category 1. 3 credits.

GS 352 Cartography and Geographic Techniques

Prerequisite: GS 351

Continuation of GS 351 with an emphasis upon statistical analysis.
Category 3. 3 credits.

GS 355 Geographic Information Systems Workshop

Prerequisite: GS 316 or GE 350

Students use automated mapping and GIS technology to prepare maps for land use planning and natural resource management applications.
Category 3. 3 credits.

GE 360 The Middle East: Its Changing Environments

Prerequisite: GE 102

The Middle East: geography, society, economics and political structure.
Category 3. 3 credits.

GE 370 Political Geography

Prerequisites: GS 101, GE 102

Space structures, growth, problems of a nation-state: modern world political problems.
Category 3. 3 credits.

GE 380 Computer Application for the Social Sciences

Prerequisite: GS 352 or basic course in statistics

Use of the SPSS system of computer programs in the analysis of social science data.
Category 3. 3 credits.

GE 390 Geography of the USSR

Prerequisite: GS 101

A study of the physical environments, regional economies, populations, and cultural problems of a giant in a tripartite world power play.
Category 3. 3 credits.

GE 410 Independent Study in Geography

Prerequisite: Consent of department

Opportunity for advanced students to pursue a topic of special interest involving extensive reading, experimentation, and research.
Category 1. 1-6 credits.

GE/GS 450 Readings and Directed Research

Prerequisites: GS 101, GE 102, GE 210, GS 351, GS 352

Directed study on selected topics; open to senior majors.
Category 2. 3 credits.

GE/GS 460 Geography Internship

Prerequisites: All department requirements for major fulfilled and consent of department

Students assigned to various government and private agencies under joint supervision of agency and faculty.
Category 3. 1-6 credits.

GE/GS 470 Selected Topics in Geography

Prerequisite: Consent of instructor

Topic or subject to be announced in advance; topic to be relevant to student needs and interests and subject to availability of professor.
Category 2. 3 credits.

Natural Science and Physics

William A. Belanger, Associate Professor (1967), Department Chair
B.S., Ed.M., Worcester State College; M.N.S., Worcester Polytechnic Institute

Geoffrey J. Garrett, Professor (1968)
B.S., Antioch College; M.A., Ph.D., Princeton University

Nancy Hicks, Associate Professor (1987)
A.B., College of Mount St. Vincent; M.A., Ph.D., Harvard University

The study of physics and natural science affords an opportunity to discover scientific fundamentals as part of a general education. Students can obtain preparation for technical employment opportunities or graduate study. The latter is considered essential for a career in physics.

Requirements for a Major in Physics: 30 credits including

PY 241, PY 242, PY 243	Physics I, II, and III
PY 301 & PY 302	Mathematical Physics I and II
PY 311	Mechanics I
PY 331	Electricity and Magnetism I

Additionally, the physics major must take a minimum of one year of calculus and one year of chemistry.

Requirements for a Major in Natural Science: 38 credits including

Two courses in mathematics
Four courses in any one science
Two courses in each of any other two sciences

NS 400	Natural Science Seminar

Requirements for a Major in Natural Science or Physics, Concentration in Nuclear Medicine Technology: See program description under the Biology Department.

Requirements for a Minor in Physics: 18 credits in Physics including

PY 221 & PY 222	General Physics I and II **or**
PY 241, PY 242, PY 243	Physics I, II, and III

Requirements for a Minor in Natural Science: 18 credits, at least 6 in different sciences.

Requirements for a Concentration in Energy Studies: This concentration offers two options, Applied Energy Science, and Management and Design. Students are urged to plan the sequence of courses in consultation with their advisors.

Natural Science Courses

NS 101 Physical Science I

Survey of physics and chemistry; evolution of concepts and theories: measurement, gravitation, energy, conservation laws, kinetic molecular theory, wave motion. Three lecture hours and two laboratory hours per week.
Category 1. 4 credits.

NS 102 Physical Science II

Light, electricity, magnetism, fundamentals of chemistry, atoms and molecules, the structure of atoms, quantum theory, and relativity. Three lecture hours and two laboratory hours per week.
Category 1. 4 credits.

NS 105 Introduction to Astronomy

The tools of the astronomer, the nature of celestial space; star locations, motions, nature, and evolution; the universe; three lectures per week.
Category 1. 3 credits.

NS 109 Fundamentals of Laboratory Technique

Familiarization with some of the simple equipment and operations employed in making measurements in the physical sciences.
Category 3. 3 credits.

NS 110 Energy in the Modern World

Interdisciplinary course examining the relation of energy and technology to living systems, community and urban life, and current social policy.
Category 3. 3 credits.

NS 201 Science and Society

Science examined in an historical and social context; the impact of science on man's interpretation of the natural world. For non-science majors.
Category 1. 3 credits.

NS 210 Introduction to Nature Study

Basic introduction to selected topics in natural science, evening sky, weather, earth history, rock types, and ecology of wild life communities.
Category 1. 3 credits.

NS 260 Energy Conservation and Management

Examination of methods to conserve and manage existing and alternate energy systems and preparation of energy management plans.
Category 3. 3 credits.

NS 261 Energy Applications and Techniques

Energy-measurement techniques are applied to components of energy conservation and solar conversion systems with student ingenuity encouraged.
Category 3. 3 credits.

NS 262 Fundamentals of Solar Energy

Analysis of the major concepts and systems for collection, storage, and distribution of solar energy via a problem-solving approach.
Category 3. 3 credits.

NS/BI 315 Neuroanatomy and Physiology

Prerequisites: BI 161, BI 162

The structural and functional organization of the central and peripheral nervous system. Principles of normal and abnormal transmission, integration and storage of information in neuronal pathways.
Category 1. 4 credits.

NS 340 Energy Construction Methods and Techniques

Prerequisite: NS 260

Drafting and model-making skills needed for site and building planning and construction detailing as related to energy systems.
Category 3. 3 credits.

NS 342 Shelter Design and Alternative Energy

Prerequisites: NS 260, NS 340

The process of design in planning shelter and alternative energy systems appropriate to the solution of student-selected design problems.
Category 3. 3 credits.

NS 346 Design and Operation of Solarspaces and Greenhouses

Prerequisites: NS 260, NS 261

Stress will be on passive solar design together with conditions for human comfort, plant growth, and impact on attached space.
Category 3. 3 credits.

NS 348 Computer and Calculator Application to Energy Studies

Prerequisites: CS 211 (or equivalent), NS 260

Application of computer programming to energy system design, engineering, and economics utilizing individual programs as well as available software.
Category 3. 3 credits.

NS 349 Energy Implications of Forestry and Land Management

Prerequisites: BI 151, NS 260

Principles and practices of forest silviculture and woodlot management with emphasis on energy forms. Students will develop original management plans.
Category 3. 3 credits.

NS 400 Natural Science Seminar

Prerequisite: Consent of department

Contemporary developments in the natural sciences; technical literature, independent projects or studies, and the preparation and presentation of technical papers.
Category 1. 3 credits.

NS 410 Independent Study in Natural Science

Prerequisite: Consent of department

Opportunity for advanced students to pursue a topic of special interest involving extensive reading, experimentation, and research.
Category 1. 1-6 credits.

Physics Courses

PY 105 Concepts of Physics I

Descriptive presentation of the fundamental concepts of classical physics: motion, energy, momentum, conservation principles and a consideration of the properties of matter.
Category 3. 3 credits.

PY 106 Concepts of Physics II

A qualitative approach to the fundamental notions of modern physics such as electromagnetic radiation, field theory, atomic spectra and relativity.
Category 3. 3 credits.

PY 107 Physics of Urban and Environmental Problems

Motion and the use of energy sources in the context of several urban and environmental problems, analysis will be physical and qualitative.
Category 3. 3 credits.

PY 114 Physics of Music

Introductory mechanics and wave principles applied to musical acoustics; demonstrations of musical instruments and measuring.
Category 3. 3 credits.

PY 215 Biological Physics I

Prerequisite: Six hours of biological science or consent of instructor

Traditional areas of introductory physics, such as mechanics, heat, sound, with emphasis on bioinstrumentation; two lectures and one two-hour laboratory.
Category 3. 3 credits.

PY 216 Biological Physics II

Prerequisite: PY 215

Continuation of PY 215; research project required; two lectures and one two-hour laboratory.
Category 3. 3 credits.

PY 221 General Physics I

Prerequisite: One year of algebra (may be taken concurrently)

The mechanics of fluids and solids, properties of matter, and heat energy; three lectures and one two-hour laboratory.
Category 1. 4 credits.

PY 222 General Physics II

Prerequisite: One year of algebra

Sound theories of light, electricity, and magnetism, and topics in modern physics; three lectures and a two-hour laboratory.
Category 1. 4 credits.

PY 241 Physics I (Mechanics)

Prerequisite: One year of calculus (may be taken concurrently)

Introduction to classical physics with emphasis on fundamental principles and conservation laws; three lectures and one two-hour laboratory.
Category 1. 4 credits.

PY 242 Physics II (Electricity and Magnetism)

Prerequisite: One year of calculus (may be taken concurrently)

Properties of electric and magnetic fields; direct and alternating current; passive and active electronic components. Three lectures and one two-hour laboratory.
Category 1. 4 credits.

PY 243 Physics III (Heat and Wave Motion)

Prerequisite: One year of calculus (may be taken concurrently)

Fluids, heat, and wave phenomena; lectures and laboratory.
Category 1. 4 credits.

PY 250 Instrumentation and Electrical Measurement

Electricity and electrical circuits; electronic theory and instrumentation; transducer response in scientific measurements, control elements and recording devices.
Category 3. 3 credits.

PY 271 Analog and Digital Electronics I

Prerequisite: MA 110

Basic principles of digital and linear integrated circuits. Laboratory on direct-current circuit elements and theorems; breadboard testing of digital and operational amplifier applications; three lectures and two-hour laboratory.
Category 1. 4 credits.

PY 272 Analog and Digital Electronics II

Prerequisite: PY 271

Continuation of PY 271; additional applications of digital integrated circuits; three lectures and a two-hour laboratory.
Category 1. 4 credits.

PY 301 Mathematical Physics I

Prerequisites: MA 200, MA 201

Applied mathematics for students majoring in science or mathematics; power series, complex numbers, determinants and matrices, partial derivatives.
Category 2. 3 credits.

PY 302 Mathematical Physics II

Prerequisite: PY 301

Continuation of PY 301; vector analysis; Fourier series, ordinary differential equations.
Category 2. 3 credits.

PY 310 Modern Physics

Prerequisite: One year each of physics and calculus

The atomic nature of matter, special relativity, atomic models, the wave nature of matter, and radioactivity.
Category 2. 3 credits.

PY 311 Mechanics I

Prerequisites: PY 242, PY 301 (may be taken concurrently)

Kinematics and dynamics of point masses, the conservation laws, motion of a system of particles; three lectures and laboratory.
Category 2. 4 credits.

PY 312 Mechanics II

Prerequisite: PY 311

Continuation of PY 311; continuum mechanics, mechanics of rigid bodies, Lagrange's equations; three lectures and laboratory.
Category 3. 4 credits.

PY 331 Electricity and Magnetism I

Prerequisite: PY 311 (may be taken concurrently)

The laws of electricity and magnetism in Maxwell's differential form; three lectures and one two-hour laboratory.
Category 2. 4 credits.

PY 332 Electricity and Magnetism II

Prerequisite: PY 331

Continuation of PY 331; solution of Laplace's equation, further consideration of Maxwell's equations; lectures and laboratory.
Category 2. 4 credits.

PY 340 Optics

Prerequisite: PY 222 or PY 243

Reflection, refraction, diffraction, interference, and polarization; the wave model of light.
Category 2. 3 credits.

PY 350 Thermodynamics

Prerequisites: PY 243 or PY 222, and PY 301 (may be taken concurrently)

Introduction to thermodynamics and statistical mechanics.
Category 3. 3 credits.

PY 361 Statics

Prerequisites: PY 121, MA 201

Emphasis on mathematical and physical formulation of principles underlying the solution of engineering problems; vector algebra; equilibrium; centroids and moments of inertia.
Category 1. 3 credits.

PY 362 Dynamics

Prerequisite: PY 361

Rectilinear and curvilinear motion of a particle, relative motion, harmonic motion, variable velocities and accelerations, the work-energy principle, impulse and momentum.
Category 1. 3 credits.

PY 400 Investigation of Special Topics in Physics

Prerequisite: Consent of instructor

Guided study course which offers an opportunity to make an in-depth study of a special topic in physics.
Category 3. 1-3 credits.

PY 410 Independent Study In Physics

Prerequisite: Consent of department

Opportunity for advanced students to pursue topics of special interest involving extensive reading, experimentation, and research.
Category 1. 1-6 credits.

PY 420 Quantum Mechanics

Prerequisite: PY 332

The uncertainty principle, wave-particle duality, the Schrodinger equation, probability amplitudes and applications to one-dimensional problems.
Category 3. 3 credits.

PY 430 Senior Physics Laboratory

Prerequisite: PY 332

Laboratory work designed to meet the individual needs of students. One three-hour laboratory period per week.
Category 3. 3 credits.

PY/BI 451 Nuclear Instrumentation I

Prerequisite: Consent of NMT coordinator

The structure, functions, and interactions of particulate and non-particulate radiations with matter, detection, calibration, dosage, and statistical methods.
Category 1. 4 credits.

PY/BI 452 Nuclear Instrumentation II

Prerequisite: Consent of NMT coordinator

Designed to further the skills of operating, calibrating, and performing routine maintenance on scanners, gamma cameras, well counters, and liquid scintillation counters.
Category 1. 4 credits.

Social and Behavioral Sciences

Psychology

M. June Allard, Professor (1973)
A.B., M.A., Ph.D., Michigan State University

Eleanor Ashton, Professor (1978)
B.S., New York University; Ed.M., Ed.D., University of Massachusetts

Joyce E. Cummings, Professor (1977)
A.B., Emmanuel College; M.A., Northeastern University; Ph.D., Boston College

Aldona L. Daly-Boxshus, Associate Professor (1968)
R.N., Hahnemann Hospital, Worcester; B.S., Clark University;
M.A., C.A.G.S., Assumption College

Barbara A. Desrosiers, Professor (1973)
A.B., University of Massachusetts; Ed.M., Harvard University;
Ph.D., University of Maryland

Bernard J. Guarini, Associate Professor (1965), Department Chair
B.S., College of the Holy Cross; M.A., Clark University;
M.A., C.A.G.S., Assumption College

Joline N. Jones, Professor (1972)
A.B., Ph.D., Syracuse University

Richard K. Kimball, Associate Professor (1985)
A.B., Dartmouth College; Ph.D., State University of New York, Buffalo

Gordon S. Matheson, Professor (1969)
A.B., Olivet College; M.A., C.A.G.S., Assumption College;
Ed.D., University of Massachusetts

Pearl Mosher-Ashley, Associate Professor (1989)
B.A., M.A., Mount Holyoke College; M.Ed., Ed.D., University of Massachusetts

Ruth S. Ostenson, Assistant Professor (1970)
B.S., M.A., University of Montana; M.Ed., Northeastern University

Andrew J. Pavlos, Assistant Professor (l993)
B.A., M.A., University of Toledo; Ph.D., University of Nevada

Psychology courses acquaint students with basic principles of learning, motivation, development, adjustment, and interaction and thereby provide a foundation for effective living and a background for a wide variety of career opportunities. The undergraduate major prepares students for graduate study in specialized fields of psychology, while the available career concentrations in industrial psychology, developmental processes, and psychology of mental health services in many cases prepare students for entry-level jobs. Psi Chi, the national honor society in psychology, is available to outstanding majors.

Admission Requirements: Admission is open to any student who is interested in psychology and who can maintain a 2.0 grade point average in the required and elective psychology courses.

Requirements for a Major: 30 credits up to a maximum of 48 including

PS 110 & PS 111 General Psychology I and II
PS 200 History and Systems of Psychology
PS 301 Social and Behavioral Statistics
PS 305 Psychological Methods
and 15 credits in psychology electives

Requirements for a Major in Psychology, Concentration in Mental Health Services: 36 credits.

This concentration prepares graduates for employment in agencies serving mental health needs of special populations, including retarded, addicted, and emotionally impaired. In addition to the five core psychology courses, the following courses are required:

PS 240 Abnormal Psychology
PS 330 Theories of Personality
PS 340 Introduction to Psychometrics
PS 400 Internship in Psychology (3 semester hours)
PS 435 Clinical Psychology
PS 492 Seminar in Mental Health Services
One elective psychology course

Requirements for a Major in Psychology, Concentration in Industrial/Organizational Psychology: 33 credits.

The Industrial/Organizational Psychology concentration is for those students who desire to focus on organizational settings by applying psychological theory and methodology to the solution of a wide variety of human problems. They range from selection and training to employer-employee interactions to organizational development. The program is designed as preparation for entry-level career jobs or specialization in industrial/organizational graduate studies. In addition to the five core psychology courses, the following courses are required:

PS 360 Industrial/Organizational Psychology
PS 400 Internship in Psychology
PS 460 Advanced Industrial/Organizational Psychology

and any three of the following four courses:

PS 250 Social Psychology
PS 285 Motivation
PS 340 Introduction to Psychometrics
PS 350 Group Dynamics

Requirements for a Major in Psychology, Concentration in Developmental Processes: 36 credits.

This concentration provides background for students planning careers related to developmental disabilities, special education, child and adolescent services, or hospital and nursing home programs for the disabled or aging.

The five core psychology courses:

PS 210 Child Growth and Development or
PS 215 Psychology of Adolescence
PS 310 Development of Exceptional Children/Youth
PS 318 Behavior Management Techniques
PS 410 Seminar in Developmental Psychology
PS 485 Introduction to Neuropsychology

and two electives selected from the following:

PS 220	Psychology of Aging
PS 225	Psychology of Learning
PS 240	Abnormal Psychology
PS 285	Motivation
PS 340	Psychometrics
PS 380	Physiological Psychology

PS 400 Internship in Psychology is recommended for any student who has not had an appropriate fieldwork experience.

Requirements for a Minor: 18 credits including

PS 110 & PS 111	General Psychology I and II
12 credits in psychology electives	

Requirements for a Minor in Developmental Disabilities: 19-21 credits.

This minor is intended for students whose vocational goals include work with the developmentally disabled. Required courses include:

PS 110	General Psychology I
PS 111	General Psychology II
PS 210	Child Growth and Development or
PS 215	Psychology of Adolescence
PS 310	Development of Exceptional Children/Youth
PS 318	Behavior Management Techniques
PS 485	Introduction to Neuropsychology

Requirements for a Minor in Industrial/Organizational Psychology: 21 credits including

PS 110	General Psychology I
PS 111	General Psychology II
PS 285	Motivation
PS 301	Social and Behavioral Statistics
PS 340	Introduction to Psychometrics
PS 350	Group Dynamics
PS 360	Industrial/Organizational Psychology

Psychology Major With a Consortium Certificate in Gerontology: Students are eligible to earn a certificate in gerontology from the Worcester Consortium for Higher Education while also completing requirements for the Psychology major. Students can obtain a copy of the recommended course of study in Room A103.

Women's Studies: 15 credits. Psychology majors may elect an interdisciplinary concentration beyond the requirements of the Psychology major. Five courses may be selected from the following:

EN 172	Women and Literature
EN 174	Women Poets
EN 345	Women in American Literature
HE 210	Women's Health Issues
HI 270	Writing on Feminism in Historical Perspective
HI 271	Women and Work in Historical Perspective
HI 272	Evolution of Women's Rights
HI 273	Ideas of Men and Women in Historical Perspective
PS 263	Psychology Of Women

Psychology Courses (Undergraduate)

PS 110 General Psychology I

The history of psychology; scientific method; brain and nervous system; developmental psychology; learning; motivation and perception.
Category 1. 3 credits.

PS 111 General Psychology II

Personality theory; psychopathology; psychotherapy; cognition; social behavior; and careers in psychology.
Category 1. 3 credits.

PS 120 Human Development

Not for major or minor credit

The study of the elements of change and constancy over the life span in orderly and sequential stages as the organism moves from conception to death. Processes by which the organism is transformed through interaction with the environment.
Category 1. 3 credits.

PS 200 History and Systems of Psychology

Prerequisites: PS 110, PS 111

An historical perspective, tracing the development of psychology into a science.
Category 1. 3 credits.

PS 210 Child Growth and Development

Prerequisite: PS 110

Physical, social, emotional, intellectual, and moral development from conception to adolescence is examined within a framework of various theories.
Category 1. 3 credits.

PS 215 Psychology of Adolescence

Prerequisite: PS 110

The mental, emotional, social and physical changes of contemporary adolescence are examined with emphasis on family, peer and school influences.
Category 1. 3 credits.

PS 220 Psychology of Aging

Prerequisite: PS 110

Adulthood and old age are studied with special emphasis on current developmental theories.
Category 1. 3 credits.

PS 225 Psychology of Learning

Prerequisite: PS 110

Learning as a fundamental concept in understanding behavior; examines principles and theories of learning, emphasizing experimental findings.
Category 3. 3 credits.

PS 240 Abnormal Psychology

Prerequisite: PS 111

Etiology, dynamics, and treatment of psychopathology and their relation to normal personality are considered from traditional and contemporary perspectives.
Category 1. 3 credits.

PS 250 Social Psychology

Prerequisite: PS 111

The psychological dynamics of social interaction including verbal and nonverbal communication, group dynamics and attitude formation and change.
Category 1. 3 credits.

PS 263 Psychology of Women

Prerequisite: PS 110

Women's psychological development throughout the lifespan will be examined, including female development, achievement, stereotyping, stress, violence and psychological disorders.
Category 2. 3 credits.

PS 265 Psychology of Marriage

Prerequisite: PS 111

Marriage and alternatives are explored, focusing on personal growth, partner selection, loving styles, communication, sex, crises and termination of relationships.
Category 2. 3 credits.

PS 280 Sensation and Perception

Prerequisite: PS 110

Selected sensory and perceptual processes are studied in the context of current theory and research.
Category 2. 3 credits.

PS 285 Motivation

Prerequisite: PS 110

A study of conditions that arouse, sustain and direct behavior. Topics include stress, competence, controllability, altruism, self-esteem and employment related motivation.
Category 1. 3 credits.

PS 301 Social and Behavioral Statistics

Prerequisites: PS 110, PS 111

Data tabulation; graphing; measurement of central tendency, variability and correlation; hypothesis testing applied to psychological and sociological data. Hand and computer analysis..
Category 1. 3 credits.

PS 305 Psychological Methods

Prerequisites: PS 110, PS 111, PS 301

The design, conduct, analysis and reporting of research are stressed. A broad range of laboratory experiments and demonstrations are conducted.
Category 1. 3 credits.

PS 310 Development of Exceptional Children/Youth

Prerequisites: PS 110, PS 111

Characteristics and needs of children with exceptionalities including behavior retardation, giftedness, physical or sensory disabilities, emotional or social maladjustments.
Category 2. 3 credits.

PS 318 Behavior Management Techniques

Prerequisites: PS 110, PS 111

Considers the basic concepts of behavior management, including behavior modification for exceptional and normal populations.
Category 2. 3 credits.

PS 330 Theories of Personality

Prerequisites: PS 110, PS 111

A survey of major theories of personality. Why people behave as they do is explored through the different theories.
Category 1. 3 credits.

PS 340 Introduction to Psychometrics

Prerequisites: PS 110, PS 111, PS 301

Methods and instruments used in the evaluation of the psychological attributes of human beings.
Category 1. 3 credits.

PS 350 Group Dynamics

Prerequisite: PS 110

Group process deals with the basic issues of leadership, membership, developmental stages and types of groups, theoretically and experientially.
Category 1. 3 credits.

PS 360 Industrial/Organizational Psychology

Prerequisite: PS 110

A concentration on the work of the psychologist in industry/business and other organizational settings in the public and private sectors.
Category 1. 3 credits.

PS 380 Physiological Psychology

Prerequisites: PS 110, PS 111

Psychobiological problems; current physiological research in emotion, motivation and learning and the use of physiological methods in psychology.
Category 2. 3 credits.

PS 400 Internship in Psychology

Prerequisite: Consent of Instructor

Provides opportunity to advanced students to increase experience through internship with sponsoring community organization, institution, or business under appropriate supervision.
Category 1. 1-3 credits

PS 405 Independent Study in Psychology

Prerequisites: PS 110, PS 111, PS 200, PS 301, PS 305, consent of instructor

Student will pursue an area of special interest through research or field work under close supervision of a faculty member.
Category 1. 1-6 credits.

PS 410 Seminar in Developmental Psychology

Prerequisites: PS 110, PS 111, PS 210 or PS 215

Patterns of physical, mental and emotional development are explored with emphasis on independent work.
Category 3. 3 credits.

PS 435 Clinical Psychology

Prerequisites: PS 110, PS 111, PS 240

Practical issues, methods and techniques of current psychotherapies with emphasis on psychoanalytic, client-centered, and behavioral approaches.
Category 1. 3 credits.

PS 460 Advanced Industrial/Organizational Psychology

Prerequisites: PS 360, any two of PS 250, PS 285, PS 340, PS 350

An in-depth exploration of selected topics from the field of Industrial/Organizational Psychology.
Category 1. 3 credits.

PS 480 Advanced Experimental Psychology

Prerequisites: PS 110, PS 111, PS 300

Laboratory procedures and techniques on an advanced level applied to selected independent projects.
Category 3. 3 credits.

PS 485 Introduction to Neuropsychology

Prerequisites: PS 110, PS 111

Human brain behavior relationships; neurological correlates of attention, cognition, perception, consequences of damage upon behavior.
Category 2. 3 credits.

PS 492 Seminar in Mental Health Services

Prerequisites: PS 240, PS 330

Emphasizes knowledge and experiential skillbuilding necessary for entry into the field of mental health services.
Category 2. 3 credits.

PS 495 Special Topics in Psychology

Prerequisites: PS 110, PS 111

Selected areas of mutual interest to instructor and students. Topics and prerequisites are announced in advance.
Category 1. 3 credits.

Psychology Courses (Graduate)

PS 905 Independent Study in Psychology

Open to graduate students who wish to do independent research under the close supervision of a faculty member.
3 credits.

PS 930 Advanced Abnormal Psychology

Prerequisite: PS 240 or equivalent

The etiology, dynamics, and treatment of psychopathology are studied through lecture, discussion, independent reading, and research.
3 credits.

Sociology

Francis L. Brooker, Associate Professor (1970)
A.B., Brandeis University; M.A., Northeastern University

Robert W. Goss, Professor (1956)
B.S., College of the Holy Cross; Ed.M., Fitchburg State College; M.A., Clark University; Ed.D., Boston College

Frank C. Pizziferri, Professor (1968)
B.S., Boston University; M.S., Illinois Institute of Technology; Ed.D., University of Massachusetts

Faith T. Zeadey, Assistant Professor (1965)
B.S., M.A., Boston College

Matthew A. Zelman, Associate Professor (1973)
A.B., Northeastern University; M.A., Boston University

The sociology curriculum is designed to provide students with an appropriate frame of reference, through the systematic study of human society, for both social participation and the scientific evaluation of human behavior. The major begins the preparation of students who plan careers in sociology or related areas such as social work.

Admission Requirements: Admission to the Sociology major is based on maintaining acceptable grades in the general foundation requirements and interest in the field of sociology. Interested students should apply in person to the Chair of the Social and Behavioral Sciences Department. Upon admission, each major is assigned an advisor and receives an orientation in sociology.

Requirements for a Major in Sociology: 30 credits including:

SO 100	Introduction to Sociology
SO 270	Social Theory I
SO 280	Research Methods of Sociology
SO 301	Social and Behavioral Statistics

A maximum of two courses at the 100 level
A minimum of three courses at the 300 and/or 400 level

All courses taken beyond the minimum requirements will be credited as electives.

Requirements for a Minor: 18 credits including:

SO 100	Introduction to Sociology **or**
SO 110	Cultural Anthropology

All prerequisites for 300 and 400 level courses must be met if the student wishes to elect courses at these levels.

Sociology Courses

SO 100 Introduction to Sociology

The nature of group behavior and social interaction viewed through analysis of the structure, norms, and values of human groups.
Category 1. 3 credits.

SO 110 Cultural Anthropology

Cross cultural analysis of the human capacity.for adaptation and technological and ideological development. Significant field studies will be examined
Category 1. 3 credits.

SO 130 Race and Ethnicity

Dynamic processes and patterns of inter-group relations with special emphasis on socially perceived racial and ethnic variables.
Category 3. 3 credits.

SO 200 Contemporary Social Problems

Prerequisite: SO 100 or SO 110

Analysis of social, political, urban, and industrial changes which have introduced specific problems into contemporary society.
Category 1. 3 credits.

SO 205 Issues in American Society

Prerequisite: SO 100

Identification and analysis of the current social issues faced by modern industrial societies and analysis of policies and processes designed to resolve these issues.
Category 3. 3 credits.

SO 210 Society, Science, and Technology

Prerequisite: SO 100 or SO 110

Relationships and patterns of social issues created by the nature of scientific and technological advances.
Category 3. 3 credits.

SO 215 Medical Sociology

Prerequisite: SO 100 or SO 110

The structure of health care delivery systems and role interaction between levels of health care personnel, patients, and families of patients.
Category 3. 3 credits.

SO 220 Sociology of the Family

Prerequisite: SO 100 or SO 110

A comparative approach to the study of the structure of family systems with emphasis on changing patterns of family life.
Category 3. 3 credits.

SO 225 Sociology of the Middle Eastern Family

Prerequisite: SO 100

A sociological analysis of the structure and function of the Middle Eastern family and discussion of the rapid social change it is undergoing.
Category 3. 3 credits.

SO 230 Political Sociology

Prerequisite: SO 100 or SO 110

Foundations of social movements in political phenomena, social conditions and emerging political institutions; the structural basis of social change and politics.
Category 3. 3 credits.

SO 240 Sociology of Education

Prerequisite: SO 100 or SO 110

Study of American education, emphasizing the social, political, and economic factors that influence it as well as its institutional structure.
Category 3. 3 credits.

SO 250 Sociology of Religion

Prerequisite: SO 100 or SO 110

Comparative study of systems of belief and religious institutions with emphasis on natural and mystical components of religious phenomena.
Category 3. 3 credits.

SO 270 Social Theory I

Prerequisite: SO 100 or SO 110

Fundamental concepts and intellectual traditions, especially the contributions of Comte, Spencer, Marx, Toennes, Durkheim, and Simmel.
Category 3. 3 credits.

SO 280 Research Methods of Sociology

Prerequisite: SO 100 or SO 110

An analysis of the research function in sociology; the conduct of research appropriate to undergraduate students; the formal presentation of research papers.
Category 1. 3 credits.

SO 300 Social Change

Prerequisites: Two courses at 200-level

Causes, characteristics, and consequences of change in the established patterns of interaction and behavior in society.
Category 3. 3 credits.

SO 301 Social and Behavioral Statistics

Prerequisite: SO100 and any 200 Sociology Course

Data tabulation; graphing; measurement of central tendency, variability, and correlation; hypothesis testing applied to psychological and sociological data. Hand and computer analysis.
Category 1. 3 credits.

SO 310 Formal Organizations

Prerequisites: Two courses at 200-level

The structure and function of, and communications systems within, formal and complex organizations; primary focus on theoretical aspects of organizations.
Category 3. 3 credits.

SO 315 Collective Behavior

Prerequisites: Two courses at 200-level

Processes by which new norms and forms of social organization emerge from group behavior, aggregate behavior, and social movements.
Category 3. 3 credits.

SO 330 Criminology

Prerequisites: Two courses at 200-level

Theoretical perspective on crime, criminals and the social aspects of interrelationships within, and between the components of the criminal justice system.
Category 3. 3 credits.

SO 335 Juvenile Delinquency

Prerequisites: Two courses at 200-level

Dynamics of small group involvement and other environmental influences in the shaping of an individual's personality.
Category 3. 3 credits.

SO 340 Social Psychology

Prerequisites: Two courses at 200-level

Dynamics of small group involvement and other environmental influences on the shaping of an individual's personality.
Category 3. 3 credits.

SO 345 Sociology of Deviance

Prerequisites: Two courses at 200-level

The study of the social consequences and apparent causes of deviant behavior through the analysis of the processes of socialization, intra- and inter-group relations and the social contexts within which deviation is defined.
Category 3. 3 credits.

SO 350 Social Stratification

Prerequisites: Two courses at 200-level

Recurrent patterns of inter-group contact, differentiation, ranking and evaluation; theories and concepts which explain the development process of open and closed societies; characteristics of stratification systems and their pervasive influence on social institutions.
Category 1. 3 credits.

SO 360 Urban Sociology

Prerequisites: Two courses at 200-level

A cross-cultural study of urban social systems and the phenomena and problems connected with the planning process.
Category 3. 3 credits.

SO 375 Contemporary Social Theory

Prerequisites: SO 270, SO 370, or two courses at 200-level

Analytical devices, conceptual schemes, and models used by contemporary theorists with emphasis on structural sociology.
Category 3. 3 credits.

SO 390 Sociology of Mental Health

Prerequisites: Two courses at 200-level

The social definition of mental illness which contributes to social disorder, and its treatment and prevention.
Category 3. 3 credits.

SO 400 Independent Study

Prerequisites: Eight prior courses in sociology or consent of instructor

For advanced sociology majors only; topic to be approved by an independent study advisor.
Category 1. 1-6 credits.

SO 410 Field Work

Prerequisites: Eight prior courses in sociology or consent of instructor

Data collection based on participant observation within a social service organization; assignment approval by field work advisor.
Category 1. 1-6 credits.

SO 420 Seminar in Sociology

Prerequisites: Eight prior courses in sociology or consent of instructor.

Advanced study topics in selected areas of sociology; announcement made at pre-registration time.
Category 3. 1-3 credits.

Urban Studies

Francis I. Amory, Professor (1977), Department Chair
A.B., M.A.T., Harvard University; M.S.W., Boston University

Maureen E. Power, Professor (1975)
A.B., Emmanuel College; M.S.W., Ph.D., Brandeis University

Vincent E. Powers, Professor (1972)
A.B., M.A., University of Massachusetts; Ph.D., Clark University

Requirements for a Major: 36 credits in courses with numbers between UR 101 and UR 439. Experiential courses in internship and practicum count for degree credit above the required 36 credits in formal classroom courses.

Requirements for a Major in Urban Studies, Concentration in Gerontology:

The required courses for the major and the four following required courses for the concentration and two electives:

Required:

UR 216	Women and Aging in the Urban Environment
UR 341	Urban Health and Social Service or Aging and Health (at University of Massachusetts)
UR 352	Policy Planning for an Aging Society
PS 220	Psychology of Aging

Two electives from:

UR 202	Aging in Metropolitan Society
UR 325	Social Casework in the Urban Setting
UR 326	Career Planning in Urban Society
UR 340	Urban Housing Dilemma
UR 321	Social Work in Urban Society
UR 422	Selected Topics in Gerontology: Intergenerational Issues and Prospects for the 2lst Century

Urban Studies Major with a Consortium Certificate in Gerontology

Students are eligible to earn a certificate gerontology from the Worcester Consortium for Higher Education while also completing requirements for the urban studies major. Students can obtain a copy of the recommended course of study in Room G28.

Requirements for a Major in Urban Studies, Concentration in Health and Human Services:

UR 101	Introduction to Urban Systems
UR 212	American Metropolitan Evolution
UR 213	Human Identity and the Urban Environment
UR 310	Power, Politics and Decision-Making in Urban Communities **or** UR 311 Community Politics and Policies
UR 320	Human Needs and Social Services
UR 341	Urban Health and Social Services System
UR 401	Research Seminar in Urban Studies

Requirements for a Major in Urban Studies, Concentration in Public Service and Urban Community Planning:

UR 101	Introduction to Urban Systems
UR 212	American Metropolitan Evolution
UR 213	Human Identity and the Urban Environment
UR 310	Power, Politics and Decision-Making in Urban Communities **or**
	UR 311 Community Politics and Policies
UR 370	Structure and Function of Urban Organizations
UR 401	Research Seminar in Urban Studies

Requirements for a Minor: 18 credits including the following

UR 101	Introduction to Urban Systems
UR 212	American Metropolitan Evolution
UR 213	Human Identity and the Urban Environment

Three additional UR 300-level courses

Graduate Program

Master of Science in Human Service Management

Admission Requirements: General admission requirements for graduate study. In addition, applications will be individually reviewed by the department and applicants selected on the basis of motivation, career goals and established experience in the human service field.

Requirements of the Program: 36 graduate credits including the following 21-credit core:

UR 940	Leadership Skills and Social Group Work
UR 942	Organizational Theory and Effective Intervention
UR 944	Politics, Public Policy, and the Human Services
UR 945	Financial Management for Non-Profit Organizations
UR 946	Seminar in Program Analysis and Evaluation
UR 948	Advanced Supervision Skills
UR 949	Strategic Decision-Making and Computer Systems

Any three of the following may be taken as electives, along with other courses approved in advance by the advisor:

UR 930	Communications for Effective Management
UR 932	Practices in Community Organization
UR 950	Unions and the Public Sector
UR 993	Marketing in Non-Profit Organizations
UR 995	Accounting and Budgeting for Public Management
UR 996	Public Law
UR 997	Personnel Management and Non-Profit Organizations

Each candidate must also complete a six-credit action research project:

UR 990	Action Research I
UR 991	Action Research II

Each candidate is required to pass an oral comprehensive examination after completion of the Action Research Project and coursework. The examination will focus upon the integration of courses taken, current managerial competencies, and career projections.

Urban Studies Courses (Undergraduate)

UR 101 Introduction to Urban Systems

A broad contextual overview of urban life that examines from a systems perspective the relationship of man and his environment.
Category 1. 3 credits.

UR 201 Analysis of Urban Systems

Prerequisite: UR 101

Analysis of activities, programs, and policies designed to sustain and enhance the livability of individuals in an urban environment.
Category 3. 3 credits.

UR 202 Aging in Metropolitan Society

An introduction to gerontology stressing the social, economic and political aspects of aging in the urban environment.
Category 2. 3 credits.

UR 212 American Metropolitan Evolution

Prerequisite: UR 101

Development of metropolitan America from a multi-disciplinary approach with emphasis upon dynamics of urban growth, internal development of cities, immigrations, socio-economic stratification, metropolitanization and problems deriving from growth.
Category 2. 3 credits.

UR 213 Human Identity and the Urban Environment

Prerequisite: UR 101

Study of factors affecting identity in contemporary urban settings including race, ethnicity, class, age, and sex categories and roles.
Category 1. 3 credits.

UR 215 Information Management in Urban Studies

Prerequisite: UR 101

Designed to familiarize students with various methods of managing, creating and reporting information.
Category 1. 3 credits.

UR 216 Women and Aging in the Urban Environment

Investigation of the Aging process for women in urban society, focusing on their great longevity, lower income status, and major caregiving role.
Category 2. 3 credits.

UR 301 Cities and Suburbs

Prerequisite: UR 101

Multidisciplinary study of city-suburban growth patterns and problems both of the past, and those that hamper metropolitan cooperation and affect the quality of life of both city and suburban residents and businesses.
Category 2. 3 credits.

UR 305 Group Conflict in the Urban Community

Prerequisite: UR 101

Study of conflict and its resolution in contemporary urban settings: Personal, small group, and societal strategies for conflict resolution will be explored.
Category 2. 3 credits.

UR 306 Interviewing and Counseling Techniques

Prerequisite: Consent of instructor

Investigation of skills and process of interviewing and counseling with emphasis upon theory and practice, participant exercises, and development of helping skills and effective counseling relationships.
Category 2. 3 credits.

UR 310 Power, Politics, and Decision-Making in Urban Communities

Prerequisite: UR 101

Exploration from multi-disciplinary approach of social power and its relation to decision-making in urban communities. Emphasis on theories of power, understanding research methodologies, and policy implications.
Category 2. 3 credits.

UR 311 Community Politics and Policies

Prerequisite: UR 101

Political behavior and perceptions in cities and towns from a multidisciplinary perspective with emphasis on how policy is initiated, developed and implemented in various governmental forms.
Category 2. 3 credits.

UR 320 Human Needs and Social Policy

Analysis of human needs as they change over a life span; why needs go unmet, and the role of social policy in meeting needs.
Category 3. 3 credits.

UR 321 Social Work in the Urban Society

Prerequisite: UR 101

Overview of approaches used by social work professionals in assessing and meeting needs, including case-work, community organization and planning.
Category 3. 3 credits.

UR 325 Social Casework in the Urban Setting

Prerequisite: UR 101

Introduction to various social work approaches—client-centered, task-centered, Gestalt, Carhuff, reality therapy; role playing and counseling simulations utilized.
Category 2. 3 credits.

UR 326 Career Planning in Urban Society

Prerequisite: UR 101

Research of the urban employment market, occupational sources, basic interviewing techniques, developing a job brief and elaboration of a career plan.
Category 3. 3 credits.

UR 330 Justice in the Urban Society

Prerequisite: UR 101

Theoretical perspectives on the mission of the criminal justice system and the daily operation of its sub-components.
Category 3. 3 credits.

UR 331 Crime and the City

Prerequisite: UR 101

Investigation of crime in contemporary urban society and the social, legal, economic, and cultural strategies for dealing with crime and deviance.
Category 3. 3 credits.

UR 340 Urban Housing Dilemma

Prerequisite: UR 101

Analysis of the factors that shape the nature, location, and supply of urban housing with special focus on federal policies and the housing needs of elders.
Category 2. 3 credits.

UR 341 Urban Health and Social Services Systems

Prerequisite: UR 101

Analysis of health-care planning and delivery systems emphasizing the role of services within these systems and the health needs of elder citizens.
Category 1. 3 credits.

UR 350 Urban Youth in American Society

Prerequisite: UR 101

Role and problems of youth in urban societies viewed from a variety of social science perspectives with additional employment of contemporary music and literature.
Category 3. 3 credits.

UR 351 Public Policy and Youth Services

Prerequisite: UR 101

Role of theory, attitudes, and public opinion in the formation of policies concerning delinquency with exploration of current practices and innovative strategies.
Category 2. 3 credits.

UR 352 Policy Planning for an Aging Society

Prerequisite: Consent of instructor

Analysis of current social policies in regard to elders and exploration of ways in which policies need to be altered to meet growing elder needs.
Category 1. 3 credits.

UR 360 Environmental Systems and Public Policy

Prerequisite: UR 101

Examination of urban ecosystems, focusing on land uses designed to effectively utilize water, open space and other natural resources.
Category 3. 3 credits.

UR 361 Public Policy and Environmental Issues

Prerequisite: UR 101

Investigation of the factors that determine the formation of public policy on the environment with consideration of the roles played by state and federal regulatory agencies.
Category 3. 3 credits.

UR 370 Structure and Function of Urban Organizations

Prerequisite: UR 101

Advanced leadership seminar for students interested in pursuing management careers in public and non-profit organizations.
Category 3. 3 credits.

UR 401 Research Seminar in Urban Studies

Prerequisite: UR 101

Research skills for urban-based projects including techniques in gathering, analyzing, and reporting data and various forms of field research.
Category 1. 3 credits.

UR 410 Assigned Research in Urban Affairs

Prerequisite: UR 101

Individual or small group directed research into selected problems and issues in urban affairs.
Category 3. 3 credits.

UR 411 Assigned Readings in Urban Affairs

Prerequisite: UR 101

Directed readings for students interested in special topics related to their academic program of study.
Category 2. 3 credits.

UR 421 Selected Topics in Urban Studies

Prerequisite: UR 101

In-depth examination of topical issues challenging the intellectual and creative interests of advanced students in urban studies.
Category 3. 3 credits.

UR 422 Selected Topics in Gerontology

Prerequisite: Consent of instructor

In-depth examination of topical issues in gerontology which afford the advanced student the opportunity to pursue gerontological research.
Category 3. 3 credits.

UR 430 Seminar in Current Urban Problems

Prerequisite: UR 101

Individual and group investigation and research of selected and current urban problems.
Category 3. 3 credits.

UR 432 Demographic Research Seminar

Prerequisite: UR 101

Small group or individual research using various sources in gathering, interpreting, reporting and projecting policy implications of demographic data.
Category 1. 3 credits.

UR 440 Practicum in Urban Studies

Prerequisite: UR 101

Directed experiential study for advanced students.
Category 3. 3 credits.

UR 450 Internship in Urban Studies

Prerequisites: Completion of 21 credits in Urban Studies

Supervised and intensive semester-long experience in community agencies, including weekly group seminar.
Category 1. 6-12 credits.

Urban Studies Courses (Graduate)

UR 930 Communications for Effective Management

Effective utilization of media, memoranda, digests, letters, formal reports, and large-scale meetings and conferences in managing human service organizations.
3 credits.

UR 932 Practices in Community Organization

Studies the principles and methods of effective community organization as a process of helping people and communities to help themselves. Range of theoretical and pragmatic approaches considered.
3 credits.

UR 940 Leadership Skills and Social Group Work

Explores values, objectives, and principles of effective group leadership. Analysis of group formation, inter-group relations, developmental group stages, and termination.
3 credits.

UR 942 Organizational Theory and Effective Intervention

authority structures, specialization and integration of functions, and the role of professional managers.,
3 credits.

UR 944 Politics, Public Policy and the Human Services

An explication of the nature of political power and the influence of power upon the delivery of various types of social services.
3 credits.

UR 945 Financial Management for Non-Profit Organizations

Theoretical and practical approaches to the allocation and control of financial resources in non-profit settings. Conventional and non-conventional budgeting techniques, cost/benefit analysis and preparation of financial statements.
3 credits.

UR 946 Seminar in Program Analysis and Evaluation

Explores philosophical issues, politics, and specific evaluation instruments involved in effective program analysis upon utilization of computer systems.
3 credits.

UR 948 Advanced Supervision Skills

Examines supervision, staff development, and training in human services organizations. Case studies and supervision simulations utilized.
3 credits.

UR 949 Strategic Decision-Making and Computer Systems

The design, use, and organizational impact of the computer on managerial processes. Topics include systems design, modeling, inquiry systems, management information systems and simulation.
3 credits.

UR 950 Unions and the Public Sector

An intensive examination of key collective bargaining topics. Topics include grievance-arbitration processes, productivity bargaining, and impasse resolutions in the public sector.
3 credits.

UR 990 Action Research I

Design and implement action research project in Human Services.
3 credits.

UR 991 Action Research II

Continuation of UR 990
3 credits.

UR 993 Marketing in Non-Profit Organizations

Examination of the role of marketing concepts and tools in non-profit organizations. Marketing research, product development, pricing, advertising, publicity, and market control studied in the non-profit sphere.
3 credits.

UR 994 Assigned Readings in Human Service Management

Prerequisite: UR 940

Independent study under faculty supervision. Student will define area of advanced study in human service management.
3 credits.

UR 995 Accounting and Budgeting for Public Management

Introduction to accounting and budgeting concepts as applied to management in federal, state or local public agencies. Topics include control limit theorem, confidence intervals, probability values, analysis of variance, simple and multiple regression and partial and multiple correlations.
3 credits.

UR 996 Public Law

Legal framework and constraints within which human service administrators operate. Discussion of rights and responsibilities, and discretionary limits of managerial decision-making.
3 credits.

UR 997 Personnel Management and Non-Profit Organizations

Introduction to personnel management, manpower, planning, employee selection, recruitment strategies, personnel practices, employee evaluation, and labor relations. Special focus upon human service applications.
3 credits.

UR 998 Research in Human Service Management

Prerequisite: UR 940

Supervised research in human service management. Students will learn a variety of research tools specifically relevant to research in human service organizations.
3 credits.

Visual and Performing Arts

Art

Doris M. Carter, Professor (1967)
B.S., Massachusetts College of Art; M.A., University of California, San Jose; Ed.D., University of Massachusetts

Michael C. Hachey, Assistant Professor (1993)
B.F.A., M.F.A., Massachusetts College of Art

Ellen V. Kosmer, Professor (1964), Department Chair
B.F.A., Massachusetts College of Art; M.A., Western Reserve University; Ph.D., Yale University

Michel D. Merle, Professor (1971)
A.B., M.A., Columbia University; M.F.A., Instituto Allende

The art program is designed to sharpen visual perception, to deepen understanding and experience of art history, and to teach technical skills and theoretical framework for the production of art and design. Interdisciplinary courses relate the visual arts to the arts of music and theatre, in both contemporary and historic periods.

All courses offered by this discipline can be used to fulfill the Fine Arts distribution requirement.

Requirements for a Minor in Art: 18 credits, including a minimum of three credits in art history and at least one art course at the 300-level. The College reserves the right to retain some student work for demonstration and exhibition.

Art Courses

AR 100 Creative Painting

Various schools of painting are studied with particular attention to personal applications.
Category 1. 3 credits.

AR 101 Art Forms

The theory and techniques of past and present art movements will be explored using a variety of media.
Category 1. 3 credits.

AR 102 Drawing in Various Media

The student becomes acquainted with a variety of techniques used in drawing and in artistic applications.
Category 1. 3 credits.

AR 103 Watercolor I

Students deal with various techniques used by water colorists past and present; individual exploration encouraged.
Category 3. 3 credits.

AR 104 Figure Drawing

Drawing of the human figure; use of pencil, conte, pastel, pen and ink, watercolor, etc. (A model fee will be charged.)
Category 1. 3 credits.

AR 105 Design I

The use of form, line, color, and texture as design elements is studied. Images and techniques will be analyzed.
Category 1. 3 credits.

AR 107 Sculpture I

Basic sculpture techniques; clay and terra cotta studies of the head and figure, plaster, piece molds.
Category 1. 3 credits.

AR 108 Mixed Media

A variety of materials in both two and three dimensional forms; representational and abstract works.
Category 1. 3 credits.

AR 109 Printmaking

Basic printmaking; etching and relief printmaking. Prints from major artists are investigated.
Category 3. 3 credits.

AR 110 Art History: Stonehenge to the Renaissance

Art styles and movements from prehistoric man to the Renaissance; painting, sculpture, architecture.
Category 1. 3 credits.

AR 111 Art History: The Renaissance to Picasso

Art from the Renaissance to the present; the effects of the social and intellectual climate on art.
Category 3. 3 credits.

AR 112 History of Medieval Art

Western European art (c. 800 - c. 1400) and the effects of the social and intellectual climate on art.
Category 3. 3 credits.

AR 113 History of Renaissance Art

The development of art in Italy and northern Europe (c. 1400 - c. 1700) is traced; social and intellectual trends affecting the artist.
Category 2. 3 credits.

AR 114 Foundations of Modern Art

Influential art movements of the 19th century and their effects on the first two decades of the 20th century.
Category 3. 3 credits.

AR 115 Art of the Twentieth Century

Surrealism and other art movements in Europe and America from the end of the first World War to the present.
Category 3. 3 credits.

AR 120 Environmental Design

Analyzes urban area planning and elements responsible for the visual esthetics of a city through individual project building.
Category 3. 3 credits.

AR 200 History of American Art

Painting, sculpture, architecture, and urban planning from pre-revolutionary times to the present.
Category 3. 3 credits.

AR 300 Creative Painting II

Prerequisite: AR 100 or equivalent

Painting techniques; stress on individual direction and growth. Appropriate historical examples of painting.
Category 3. 3 credits.

AR 304 Advanced Figure Drawing

Prerequisite: AR 104

Art studies of the human figure in charcoal and pastel; preliminary studies for painting. (A model fee will be charged.)
Category 3. 3 credits.

AR 305 Design II

Prerequisite: AR 105

Advanced problems in two- and three-dimensional design.
Category 2. 3 credits.

AR 307 Sculpture II

Prerequisite: AR 107

Work in various techniques includes metal and wood sculpture. (Students must provide their own wood chisels.)
Category 3. 3 credits.

AR 310 Special Topics

Prerequisite: One art course

Particular art topics are examined according to the interest of the professor.
Category 3. 3 credits.

AR 400 Independent Study in Art

Prerequisite: Limited to art minors with a minimum of 12 credits in art

An opportunity for further study in a special field of interest under faculty supervision.
Category 1. 1-6 credits.

Music

William E. Grim, Assistant Professor (1992)
B.M., Ohio Wesleyan University; M.M., University of Akron;
Ph.D., Kent State University

Christie B. Nigro, Assistant Professor (1989)
B.M., Syracuse University; M.M., Yale University

Robert K. Sahagian, Professor (1968)
B.M., New England Conservatory of Music; M.M., Ph.D., Michigan State University

The music faculty offers courses in the performance, history, and theory of music. Students are provided with opportunities to perform in ensembles as well as take a wide variety of classroom courses to enhance musical understanding and literacy.

All courses offered in this discipline can be used to fulfill the Fine Arts distribution requirement.

Requirements for a Minor in Music: 18 credits in music

Music Courses

MU 100 Music Fundamentals

Basic knowledge and theory of notation, major and minor scales, intervals, rhythms and chords.
Category 2. 3 credits.

MU 105 Instrumental Music and Theory

Study and experience in music notation and style of instrumental music. Participation in college band required.
Category 1. 3 credits.

MU 115 Music Appreciation

A general survey of masterpieces of the major composers of various periods in the history of music.
Category 1. 3 credits.

MU 125 Music History

A survey of music history from the Medieval to the Romantic period.
Category 3. 3 credits.

MU 130 Music of the Baroque Period

The period 1600-1750 with emphasis on Bach and Handel.
Category 3. 3 credits.

MU 135 Music of the Classical Period

The period 1750-1827; Haydn, Mozart and Beethoven.
Category 3. 3 credits.

MU 140 Music of the Romantic Period

A survey of nineteenth-century music beginning with Beethoven.
Category 2. 3 credits.

MU 150 Opera

Analysis of the masterworks of the standard operatic repertoire.
Category 1. 3 credits.

MU 170 Chamber Music

A survey of chamber music beginning with the classical period.
Category 3. 3 credits.

MU 175 Music in America

A survey of music history and literature in America including gospel spirituals, jazz, popular and classical music.
Category 3. 3 credits.

MU 180 Form and Analysis

An introduction to and analysis of the formal structures of music.
Category 3. 3 credits.

MU 205 Harmony I

Prerequisite: MU 100

Harmonization of melodies; basic chord structures, ear-training, harmonic analysis, inversions, nonharmonic tones, figured bass.
Category 3. 3 credits.

MU 210 Harmony II

Prerequisite: MU 205

Harmonization of melodies using primary and secondary chords, harmonic analysis, ear-training, secondary dominants and modulation.
Category 3. 3 credits.

MU 215 Chorus and Music Theory

Prerequisite: Audition required

Mixed choral repertoire and performance, covering vocal problems and techniques. Introduction to music theory, rhythms, intervals, basic chordal structures, harmonization. Participation in college chorus required.
Category 1. 3 credits.

MU 220 Chorus

Prerequisite: MU 215

Mixed chorus repertoire. May be repeated.
Category 1. 1 credit.

MU 225 Band

Prerequisite: Audition required

Study and experience in repertoire and performance. May be repeated.
Category 1. 1 credit.

MU 237 Music in the Elementary School

Guiding growth in rhythmic, notational, and listening experiences. Survey of music books and materials.
Category 3. 3 credits.

MU 245 Twentieth-Century Music

A comprehensive study and general listener's approach to contemporary music beginning with impressionism.
Category 2. 3 credits.

MU 255 The Golden Era of Piano Music

A survey of piano music beginning with Beethoven and continuing through the Romantic tradition to the early twentieth century.
Category 2. 3 credits.

MU 260 Symphonic Music

A survey of symphonic music beginning with the classical period.
Category 2. 3 credits.

MU 265 The Concerto

The concerto from the eighteenth to the twentieth century with emphasis on the development of the piano concerto.
Category 2. 3 credits.

MU 400 Independent Study in Music

Prerequisite: Consent of instructor

An opportunity for further study in a special field of interest under faculty supervision.
Category 1. 1-6 credits.

Theatre

Ann Marie Shea, Professor (1968)
A.B., Anna Maria College; M.A., The Catholic University of America;
Ph.D., New York University

Assistant Professor/Technical Director, to be appointed.

The theatre program offers courses in theatre history, children's theatre, design and performance. Mainstage productions, some in cooperation with the music program, are produced on a regular basis. Advanced students are encouraged to stage their own laboratory shows and also to intern with local theatre companies. The theatre faculty teaches interdisciplinary courses with faculty from Art and Music.

All courses offered by this discipline can be used to fulfill the Fine Arts distribution.

Theatre Courses

TH 135 Oral Interpretation of Literature

Techniques of reading aloud and staging non-dramatic literature; e.g., short stories, poetry, etc. The student analyzes selections and then performs them in class.
Category 1. 3 credits.

TH I37 History of the Theatre

The history and interrelated development of film, television, theatre, and radio from their beginnings to the present.
Category 2. 3 credits.

TH 191 Introduction to the Theatre

An overview of live performance, with the emphasis on audience appreciation. Performance arts and crafts are examined.
Category 1. 3 credits.

TH 192 Creative Dramatics

Principles and techniques of leading improvised dramatic activity, particularly with children. Involves sensory awareness, imagination, movement, and story dramatizations.
Category 1. 3 credits.

TH 236 History of the Theatre

Survey of world theatre from Golden Age of Athens to Restoration England including brief overview of Asian theatre.
Category 2. 3 credits.

TH 245 Acting for Stage and Screen I

Prerequisite: TH 135

Basic acting theory and practice. Students present brief monologues and scenes on stage.
Category 2. 3 credits.

TH 246 Acting for Stage and Screen II

Prerequisite: TH I35, TH 245

Further development of basic acting skills for stage and screen through scene study. Some work may be done in cooperation with directing students.

TH 270 History of American Entertainment I

An historical survey of American popular entertainments from the Colonial period through the rise of the nineteenth century melodrama.
Category 1. 3 credits.

TH 271 History of American Entertainment II

An historical survey of American popular entertainments from the rise of realism through the great American musicals.
Category 1. 3 credits.

TH 275 Stagecraft and Lighting for the Theatre

Basic theories of stage design, scenecraft and stage lighting, with practicum.
Category 3. 3 credits.

TH 280 Staging Media Performances

Script selection, casting, scene analysis, and other directorial concerns. Application to film, theatre, and television.
Category 3. 3 credits.

TH 290 Theatre for Children

Organization of children's theatre, script selection, and visual design. Alternate performance spaces such as classrooms and parks emphasized.
Category 3. 3 credits.

TH 321 Rehearsal and Performance

Prerequisite: CM 110 or TH 135

Public performance of full-length stage productions under faculty direction. Students assume performance and/or production "roles" as described in departmental manual.
Category 1. 3 credits.

Visual and Performing Arts

William E. Grim, Assistant Professor (1992)
B.A., Ohio Wesleyan University; M.M., University of Akron; Ph.D., Kent State University

Michael C. Hachey, Assistant Professor (1993)
B.F.A., M.F.A., Massachusetts College of Art

Ellen V. Kosmer, Professor (1964) Department Chair
B.F.A., Massachusetts College of Art: M.A., Western Reserve University;
Ph.D., Yale University

Michele D. Merle, Associate Professor (1971)
A.B., M.A., Columbia University; M.F.A., Instituto Allende

Christie B. Nigro, Assistant Professor (1989)
B.M., Syracuse University; M.M., Yale University

Ann Marie Shea, Professor (I968)
A.B., Anna Maria College; M.A., The Catholic University of America;
Ph.D., New York University

Courses carrying the VP prefix are interdisciplinary. They offer a team-taught approach to arts appreciation, criticism and creation. Emphasis is placed on examining both the commonalities and differences among the arts.

All courses offered by this discipline can be used to fulfill the Fine Arts distribution requirement.

For more information on these courses consult the Department Chair.

Faculty Emeriti

Helen G. Agbay, Department of Spanish 1974
Charles D. Avedikian, Department of Mathematics & Computer Science 1990
Vera M. (Dowden) Baldwin, Department of Education 1974
Nora M. Barraford, Department of English 1984
M. Kathleen Burns, Department of Education 1983
Walter P. Busam, Department of Education 1974
Jacqueline G. Casale, Department of Media, Arts & Philosophy 1991
Louis J. Celona, Department of Media, Arts & Philosophy 1992
Harold L. Chapman, Department of Natural & Earth Sciences 1988
Carol Chauvin-Fortier, Department of Natural & Earth Sciences 1993
Kee Il Choi, Department of Business Administration & Economics 1992
Bernarr Cooper, Department of media, Arts and Philosophy 1993
Paul Davis, Department of Media, Arts and Philosophy 1992
Vincent R. DeBenedictis, Department of Languages & Literature 1990
Daniel E. Dick, Department of Natural & Earth Sciences 1989
Helen B. Duquette, Department of Health Sciences 1992
Francis T. Dyson, Department of Health Sciences 1993
Alfred F. Eddy, Department of Languages & Literature 1990
Florence Fraumeni, Department of Education 1985
Yvonne Gallant-Martel, Department of French 1977
James E. Girouard, Department of Health Sciences 1985
Loren N. Gould, Department of Natural & Earth Sciences 1993
Ruth E. Greenslit, Library Department 1989
Ruth Griffiths, Department of Education 1975
Rose Haroian, Department of Communication Disorders 1979
Mary T. Hayes, Department of Education 1974
Mary Ellen Herx, Department of Languages & Literature 1989
Paul A. Holle, Department of Natural & Earth Sciences 1989
Marion J. Jennings, Department of Education 1978
Jean E. Johnson, Department of Languages & Literature 1990
William D. Joyce, Department of Media 1983
Robert F. Kelley, Department of Natural & Earth Sciences 1988
Grace A. Kendrick, Department of Music 1974
Baheej B. Khleif, Department of Social and Behavioral Sciences 1994
Sandra Kocher, Department of Media, Arts & Philosophy 1992
Jerome L. Langer, Department of Business Administration & Economics 1982
Edward H. Leonard, Department of Natural Science 1984
Catherine Lewicke, Department of Education 1982
Joseph C. Lonergan, Department of Psychology 1984
William K. Masterson, Department of Natural & Earth Sciences 1987
Bernard L. McGough, Department of Media, Arts & Philosophy l994
Robert F. McGraw, Department of History & Political Science 1991
John P. Mockler, Department of Health Sciences 1992
Rita M. L. Morris, Department of Geography 1984
John M. Nash, Department of Social and Behavioral Sciences 1993

Faculty Emeriti

Francis J. O'Connor, Department of Spanish 1980
Richard A. O'Connor, Department of Social and Behavioral Sciences 1994
Robert F. Perry, Department of Natural & Earth Sciences 1987
Vincent Piccolo, Department of Media, Arts, & Philosophy 1988
A. Barbara Pilon, Department of Languages & Literature l994
Catherine I. Quint, Department of Education 1985
Thomas L. Roberts, Department of Natural & Earth Sciences 1988
Evelyn Robinson, Department of Mathematics 1978
Eugene M. Scanlon, Department of Education & Human Resources 1988
Dion Schaff, Department of Media, Arts, and Philosophy 1993
Helen G. Shaughnessy, Department of Education 1986
Joseph A. Shea, Department of Psychology 1983
Katherine M. Shea, Department of Languages & Literature 1991
Helen M. Smith, Library Department 1982
William L. Sullivan, Department of English 1983
G. Flint Taylor, Department of Social & Behavioral Sciences 1985
Anthony W. Thurston, Department of Biology 1983
Robert E. Todd, Department of Languages & Literature 1989
Richard S. Tyrell, Department of Languages & Literature 1994
Manuel Zax, Department of Mathematics & Computer Science 1992

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1909-1912
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1912-1939
Clinton Carpenter
1940-1946
Eugene A. Sullivan
1947-1970
Robert E. Leestamper
1970-1975
Joseph J. Orze
1975-1982
Philip D. Vairo
1982-1991
Kalyan K. Ghosh
1992-

Administrative Offices

Office of the President

Kalyan K. Ghosh, President of the College (1987)
B.S., M.S., Ph.D., University of Calcutta

Vicki R. DesLoriers, Executive Assistant to the President (1993)
B.A., The College of Wooster, M.S. Ed., Western Illinois University;
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Judith A. St. Amand, Staff Assistant/Administrative Assistant to the President (1970)
B.S., Worcester State College

Office of Diversity

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A.B.A., Quinsigamond Community College; M.A.L.A., Clark University

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Joseph Webber, Executive Director for Development and External Relations (1993)
B.A. , Boston College

John C. Davis, Director of Alumni Relations (1994)
B. A., University of New Hampshire

Linda M. Doherty, Director, Institutional Advancement & Alumni Affairs (1983)
B.S., M.Ed., Worcester State College

Director, Public Relations (1994)

Office of Academic Affairs

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B.S., University of Oregon; M.A., Boston University; Ed.M, Harvard University

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B.S., M.Ed., Worcester State College

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A.B., M.Ed., University of Bridgeport

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A.B., Newton College of the Sacred Heart; M.A., Fairleigh Dickinson University;
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B.A., Ashland College

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B.S., Westfield State College; M.Ed., Worcester State College

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B.S., Indiana University of Pennsylvania

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A.B., Hiram College; M.A., Ph.D., Case Western Reserve University

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Ann Sanchioni, Staff Assistant, Clinic Director, Communication Disorders (1988)
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B.S., Ed.M., Worcester State College; Diploma, Prof. Ed., University of Connecticut

E. Jay Tierney, Director, Admissions (1978)
A.B., St. Michael's College; Ed.M., Worcester State College,
C.A.G.S. University of Massachusetts

Marcela A. Uribe, Staff Assistant, Activity Coordinator & Recruitment Outreach Specialist (1982)
B.S., M.Ed., Worcester State College

Office of Administration and Finance

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Angelo R. Scola, Dean of Administration (1974)
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Office of Student Affairs

James J. Rauker, Vice President, Student Affairs (1984)
B.A., M.A., Ph.D., University of Iowa

Paul M. Joseph, Associate Dean, Student Affairs and Director, Student Center/Student Activities (1971)
B.A., Worcester State College; M.A., Anna Maria College

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B.A., M.A., C.A.G.S., Assumption College

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David Cormier, Staff Assistant, Supervisor, Campus Police (1986)

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B.A., University of Albany; M.S.Ed., College of St. Rose; C.A.S., University of Maine

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Alan E. Jackson, Assistant Director, Student Center/Student Activities (1983)
A.B., Southeastern Massachusetts University; M.Ed., Worcester State College

Walter J. Lennon, Director, Counseling and Career Services (1974)
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Administrative Offices

Dennis L. Lindblom, Staff Assistant, Disability Services and Undergraduate Services (l982)
B.A., University of Massachusetts; M.A., C.A.G.S., Assumption College

Thomas Moore, Staff Assistant, Athletics (1990)
B.S., Boston University

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B.S., Allegheny College; M.S., Indiana University

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Betsey J. Brenneman, Senior Librarian (1977), Department Chair
B.S., Kent State University; M.L.S., Syracuse University; M.A.T., Fitchburg State College

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B.A., Asutosh College; M.A., Calcutta University; M.L.S., Simmons College

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B.A., Dickinson College; M.S.L.S., Case Western Reserve University;
M.A., University of Massachusetts

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A.B., Ohio Wesleyan University; M.L.S., Kent State University

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B.A., State University of New York, Binghamton; M.L.S., Simmons College

Ruth A. Webber, Associate Librarian (1973)
B.A., University of Massachusetts; M.L.S., State University of New York, Albany

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Gregory O. Hunter, 1984

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Lisa Rudin, 1986

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George Albro, 1965
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William Eddy, 1984
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Gary L. Hagenbuch, 1968
Peter M. Hart, 1986
William Leach, 1962
Sandra Lian, 1967
Catherine Quint, 1939
Kathleen M. Riley, 1970
Michael Sendrowski, 1981

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3. Gymnasium/Classroom Bldg.
4. Sullivan Academic Bldg.
5. Learning Resources Center
6. Student Center
7. Sullivan Auditorium
8. Residence Halls
9. Campus Police/Dowden Hall
10. Football/Soccer/Track
11. Baseball
12. Softball
13. Gate House (Main Entrance)
14. Gate House
15. Faculty Parking
16. Campus Ministry House
17. Bus Shelter
18. Resident Parking

Admissions Office
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